George E. Hays
Attorney at Law
236 West Portal Avenue #110
San Francisco, CA 94127
(415) 566-5414

March 14, 2008

Kyrik Rombough
Natural Resources Engineering Director
Department of Environment and Natural Resources
Division of Environmental Services
Air Quality Program
523 East Capitol, Joe Foss Building
Pierre, SD 57501

RE: Comments on Big Stone II Draft PSD Permit and Statement of Basis and on the Big Stone I Draft Title V Permit and Statement of Basis

Dear Mr. Rombough:

I represent the Sierra Club, and I am writing to submit comments on its behalf regarding the South Dakota Department of Environmental and Natural Resources' (SDDENR) draft prevention of significant deterioration (PSD) permit and the draft Title V permit authorizing Otter Tail Power Company to construct and operate a new 600 MW unit and associated sources (Big Stone II) and to operate the existing Big Stone I power plant under changed methods of operation. The proposed issuance of the permits to allow construction and operation of these units are unlawful for many reasons.

In 2006, SDDENR proposed issuance of a PSD permit for Big Stone II including authorizing changes in the method of operation of Big Stone I. In response to that proposal, I submitted comments to SDDENR on June 23, 2006 in two forms – a comment letter with confidential information obtained from Otter Tail and a comment letter with confidential information redacted. I hereby incorporate by reference those comments and all attachments to those comments except as revised herein. Below, I have retained the same section numbers/titles from my June 23, 2006 comment letter and have either indicated that the comments from that section are incorporated by reference into this comment letter, or I have revised/added to my 2006 comments. Comments on additional issues regarding the current draft PSD and Title V permits are at the end of this letter, beginning with Section XXII.

The EPA submitted comment letters to SDDENR on the 2006 draft PSD permit and on the current draft PSD and Title V permits on June 26, 2006 and February 29, 2008. Those comments, which strongly support many of our claims below, are incorporated herein and included as attachments to this letter.

The Public Notices for the Current Draft PSD and Title V Permits Are Invalid, and SDDENR Must Renotice Both Permits

Before going into detail on the numerous deficiencies with the permits, I must first point out the numerous deficiencies in SDDENR's public notices for these permit actions. In addition to the flaws in the public notice on the Title V permit noted in the February 29, 2008 comment letter sent by Callie A. Videtich of U.S. E.P.A., Region 8[1], the public notices for both the PSD and the Title V permit were deficient. In the public notice for the 2008 draft PSD permit, SDDENR states "Otter Tail Power Company has accepted enforceable limits which maintain the nitrogen oxide and sulfur dioxide emissions at the current levels." This strongly implies that the nitrogen oxide (NO_x) and sulfur dioxide (SO_2) limits are already in place and are enforceable final limits. The notice utterly fails to mention that SDDENR concurrently proposed for public comment a draft Title V permit that includes the proposed NO_x and SO_2 limits. In addition, neither the current PSD Statement of Basis or the current draft PSD permit inform the public that there is a concurrent draft Title V permit out for public comment that proposes to incorporate these limits. SDDENR's 2008 Statement of Basis for the draft PSD permit states "DENR will remove the sulfur dioxide and nitrogen oxide limitations from the PSD permit and place it in Otter Tail Power Company's Title V air quality permit." 2008 Statement of Basis for draft PSD permit at 9 (Section 10.1). This sounds like a forthcoming action, not a concurrent action. Further, the 2008 Statement of Basis for the draft PSD permit indicates that Otter Tail does not need to submit an application for a Title V permit until within 12 months *after commencing operation* of Big Stone II. 2008 Statement of Basis for draft PSD permit at 24 (Section 11.1).[2] The draft PSD permit also indicates that the application for a Title V permit is not due until 12 months after commencing operation of Big Stone II. 2008 Draft PSD Permit, Condition 2.2. Indeed, Otter Tail has not even submitted Title V permit application for Big Stone II. See, e.g., statement in June 2006 updated PSD permit application for Big Stone II, Section 4.4.2 (page 4-6) which states "Big Stone will apply for an amendment to their Title V permit within 12 months after commencing operation of Big Stone II." Thus, no SDDENR document for the draft PSD permit properly informed the public that SDDENR was concurrently proposing a Title V permit for Big Stone that incorporated the plantwide SO_2 and NO_x limits for the facility including Big Stone II. Given that SDDENR is relying on those limits to allow Big Stone II to avoid PSD review for SO_2 and NO_x and that SDDENR has proposed a PSD permit for Big Stone II that fails to address PSD requirements for the SO_2 and NO_x emissions from Big Stone II, it is imperative that SDDENR properly notice to the public its method for creating the limits to allow for an exemption from PSD.

The public notice for the 2008 draft PSD permit refers the public to SDDENR's website (i.e., http://www.state.sd.us/denr/DES/AirQuality/aapubnot.htm). However, a review of the information on the website also fails to make clear that SDDENR is concurrently proposing a Title V permit that incorporates plantwide limits on SO_2 and NO_x at Big Stone to allow Big Stone II to be exempt from PSD review. Specifically, the weblink provided in the public notice

[1] EPA commented that no dates were provided in the public notices, so that it was not clear when the comment period began or ended. See Enclosure to EPA's February 29, 2008 letter to SDDENR at 4. (Attached).

[2] See also Section 2.2 of the 2008 Statement of Basis for the draft PSD permit which also indicates that submittal of a Title V permit application for Big Stone II will not be submitted until sometime in the future.

for the draft PSD permit includes information for a permit for "Ottertail Power Company, Big Stone I" as well as information for the draft PSD for "Ottertail Power Company, Big Stone II." See attached printout of SDDENR public notice website.

The permit application provided on the link for this draft Title V permit is simply a June 4, 2001 application for renewal of a Title V permit for Big Stone I and associated emission units. There is no link to any Title V permit application for Big Stone II (presumably because there hasn't been such a submission by Otter Tail as stated above).

The public notice for the draft Title V permit also fails to give the public adequate notice that draft Title V permit pertains to Big Stone II. Big Stone II is not mentioned by name at all in the public notice. Instead, the emission unit numbers (including the emission unit numbers for Big Stone II and associated units) are listed in the public notice as being authorized to operate. The public notice fails to mention that these are new units that have not yet been constructed, or that there is a concurrent PSD permitting action authorizing construction of these units. Significantly, the public notice fails to mention that SDDENR is imposing plantwide caps on SO_2 and NO_x emissions of the Big Stone facility to allow Big Stone II to avoid PSD review for those pollutants. This is a major flaw in SDDENR's attempt to create enforceable limits to allow Big Stone II to avoid PSD review for SO_2 and NO_x. As EPA has stated in several rulemakings and guidance documents, public notice and the opportunity to comment on permits and rules that limit a source's emissions so as to avoid substantive permitting requirements such as PSD is an essential component of creating an enforceable emission limitation.

Only with a detailed review of the Title V Statement of Basis and the draft Title V permit would the public know that the Title V permit for "Ottertail Power Company, Big Stone I" does not only cover "Big Stone I" but also numerous other emission units including "Big Stone II."

Thus, for all of the above reasons, SDDENR has failed to properly notice both the PSD and Title V permit. SDDENR cannot proceed with any further action on these permits, including the contested case hearing, until it renotices both of these permits. Further, given that Otter Tail has not even requested a Title V permit for Big Stone II via submittal of a Title V permit action, it is questionable whether SDDENR can legitimately propose issuance of a Title V permit that covers the Big Stone II emission units (in addition to other reasons why imposition of a plantwide cap on SO_2 and NO_x in the Title V permit cannot be legitimately used to allow Big Stone II to avoid PSD review for these pollutants, as discussed below and in my 2006 comment letters). In addition, any Title V permit authorizing operation of the Big Stone II emission units must include all requirements applicable to those units as discussed in a subsequent comment in this letter. SDDENR cannot ignore these fatal flaws in its proposed permitting actions.

I. THE 2008 DRAFT PSD PERMIT FAILS TO ADEQUATELY ADDRESS $PM_{2.5}$ AS A PSD POLLUTANT

Under 40 C.F.R. § 52.21(b)(2), a major modification is any physical change in or change in the method of operation of a major stationary source that would result in: a significant emissions increase and a significant net emissions increase of any ***regulated NSR pollutant***.. The regulations, 40 C.F.R. § 52.21(b)(50), define "regulated NSR pollutant" to mean, among other things, "[a]ny pollutant for which a national ambient air quality standard has been promulgated and any constituents or precursors for such pollutants identified by the Administrator (e.g., volatile organic compounds and $NO_{[x]}$ are precursors for ozone)." EPA has promulgated a NAAQS for $PM_{2.5}$. 62 Fed. Reg. 38,652 (July 18, 1997). The regulations list significance levels for a number of "regulated NSR pollutants," but not $PM_{2.5}$. 40 C.F.R. § 52.21(b)(23)(i). When a significance level has not been identified for a regulated NSR pollutant, the significance level is any emission rate over zero. 40 C.F.R. § 52.21(b)(23)(ii).

The Big Stone II boiler has a potential to directly emit 167 tons per year of filterable particulate matter less than 2.5 microns in diameter.[3] In addition, the boiler will emit condensable $PM_{2.5}$ emissions as well as $PM_{2.5}$ precursor emissions. EPA has specifically identified SO_2, NO_x, VOCs, and ammonia as precursors of $PM_{2.5}$. *See* 70 Fed. Reg. 24280, 24282 (May 6, 2005). See also 72 Fed. Reg. 20,586, 20,589 (Apr. 25, 2007). Given that the emissions of filterable $PM_{2.5}$ emissions alone exceed the major source emissions threshold of 100 tons per year for fossil fuel fired steam electric plants with heat input greater than 250 MMBtu/hour (pursuant to 40 C.F.R. §52.21(b)(1)(i)(a) incorporated by reference into ARSD 74:36:09:02), this facility clearly must be considered a major modification as well as a major stationary source of $PM_{2.5}$. Consequently, Otter Tail is required to comply with all PSD requirements, including monitoring, modeling, and BACT regarding $PM_{2.5}$, and SDDENR cannot issue a PSD permit for this facility unless this pollutant is properly addressed.

We are aware that EPA issued guidance providing that sources would be allowed to use implementation of a PM_{10} program as a surrogate for meeting $PM_{2.5}$ NSR requirements. John Seitz, "Interim Implementation for the New Source Review Requirements for PM[2.5]," (October 23, 1997). The purpose of that guidance was to provide time for the development of necessary tools to calculate the emissions of $PM_{2.5}$ and related precursors, adequate modeling techniques to project ambient impacts, and $PM_{2.5}$ monitoring sites. 70 Fed. Reg. 65984, 66043 (Nov. 1, 2005). EPA has resolved most of these issues. *Id.* More importantly, the guidance clearly contravenes the regulations. In a permitting situation such as this one, where the facility is attempting to avoid PSD review for SO_2 and NO_x, in order to protect public health and the environment, the regulations must be implemented as written.

SDDENR claims in its Statement of Basis for the 2008 draft PSD permit for Big Stone II that, since $PM_{2.5}$ is a subset of PM_{10}, the BACT analysis for PM_{10} is adequate and no additional $PM_{2.5}$ BACT requirements are necessary. 2008 Statement of Basis at 14 (Section 10.2.1-4). We strongly disagree. While a baghouse may be BACT for primary $PM_{2.5}$, SDDENR has not

[3] This was determined using the proposed filterable PM_{10} BACT allowable emission limit of 72 pounds per hour (from section 4.1 of the 2008 draft PSD permit), assuming continual operation at the maximum allowable emission rate throughout the year, and assuming 53% of the PM emissions exiting the baghouse would be less than 2.5 microns in diameter as provided in EPA's AP-42 Emission Factors for Bituminous and Subbituminous Coal Combustion (Table 1.1-6).

conducted any review or specified BACT for the precursor to $PM_{2.5}$ including SO_2 and NO_x. Thus, the draft PSD permit for Big Stone II fails to address BACT for $PM_{2.5}$.

SDDENR also failed to require any preconstruction monitoring for $PM_{2.5}$ by Otter Tail, as required by 40 C.F.R. §52.21(m) incorporated by reference into ARSD 74:36:09:02.

Otter Tail did conduct a modeling analysis for $PM_{2.5}$. August 4, 2006 submittal from Otter Tail to SDDENR. However, Otter Tail's modeling was not adequate to demonstrate compliance with the $PM_{2.5}$ NAAQS due to many issues including failure to account for precursors to $PM_{2.5}$ emissions and condensable $PM_{2.5}$ emissions, use of inadequate meteorological data, an inadequate receptor grid, and failure to consider appropriate background $PM_{2.5}$ concentrations. It also does not appear that Otter Tail took into account the $PM_{2.5}$ emissions including precursor emissions from the co-located ethanol plant. Thus, Otter Tail's $PM_{2.5}$ modeling analysis cannot be relied on by SDDENR to find that Big Stone II will not cause or contribute to a violation of the $PM_{2.5}$ NAAQS.

II. EMISSION REDUCTIONS AT BIG STONE I CANNOT BE USED TO EXEMPT BIG STONE II FROM PSD REVIEW BECAUSE THE EMISSIONS FROM BIG STONE I ARE ILLEGAL

The comments regarding the emissions from Big Stone I being illegal and unavailable to exempt Big Stone II from PSD review from my June 23, 2006 comment letters including all attachments are incorporated into this comment letter.

III. SDDENR CANNOT ALLOW BIG STONE II TO AVOID PSD REVIEW FOR SO_2 AND NO_x BY OBTAINING OFFSETS

The comments regarding this issue that Big Stone II cannot avoid PSD review by obtaining emission offsets from my June 23, 2006 comment letters including all attachments are incorporated into this comment letter. Unless SDDENR definitively determines that Big Stone I and Big Stone II are both part of the same stationary source, trading of emissions between Big Stone I and Big Stone II is not allowed. The PSD regulations do not provide for emissions trading between separate sources to avoid PSD.

IV. NOT WITHSTANDING THE ILLEGAL EMISSIONS AT BIG STONE I, BIG STONE II WILL HAVE A SIGNIFICANT EMISSION INCREASE AND A SIGNIFICANT NET EMISSIONS INCREASE OF NO_X AND SO_2

Otter Tail has claimed that, as a result of the requested plantwide cap on actual emissions at Big Stone, there will be no significant actual emissions increase in SO_2 or NO_x from the installation of Big Stone II. (See page 3-2 of Otter Tail's June 2006 Updated PSD Construction Permit Application). SDDENR has claimed that, with the plantwide caps and other proposed emission limits, Big Stone II is not subject to PSD for SO_2 or NO_x because its potential emission increases would be less than the significance rate of 40 tons per year. However, SDDENR has not explained whether Big Stone II's emissions would be a major modification under the current

PSD regulations, which require both an evaluation of the emission increase from the new unit and an evaluation of net emissions increase at the entire facility. Assuming that Big Stone I was not illegally modified and assuming that SDDENR determines that Big Stone I and II are both part of one major stationary source, Big Stone II must be considered a major modification for NOx and SO_2 as is shown in detail below.

Under the PSD regulations as revised by EPA in 2002 which are reflected in the federal PSD regulations incorporated by reference into South Dakota regulations at ARSD 74:36:09:02, a modification is a major modification if it would cause both a significant emissions increase and a significant net emissions increase. 40 C.F.R. §52.21(a)(2)(iv)(a) (as incorporated into South Dakota's rules at 74:36:09:02). 40 C.F.R. § 52.21(a)(2)(iv)(d) requires that, for construction of a new emissions unit as is the case with Big Stone II, "[a] significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the potential to emit [as defined in 40 C.F.R. §52.21(b)(4)] *from each new emissions unit* following completion of the project and the baseline actual emissions [as defined in 40 C.F.R. §52.21(b)(48)(iii) *of these units* before the project equals or exceeds the significant amount for that pollutant. . . ." [Emphasis added.] 40 C.F.R. §52.21(b)(48)(iii) provides that "*[f]or a new emissions unit*, the baseline actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation *of such unit* shall equal zero. . . ." [Emphasis added.] Thus, in accordance with these provisions, to determine if a significant emissions increase of SO_2 or NO_x is projected to occur as result of the new Big Stone II unit, the potential to emit of the new unit must be determined and compared to the significant levels for SO_2 and NO_x. The potential to emit of the new unit is based on the maximum capacity of the new unit to emit a pollutant, considering any federally enforceable limitations on that unit.

The only unit-specific limits in the proposed permit are the NSPS limits of 1.4 lb SO_2/MWh (gross) and the 1.0 lb NO_x/MWh (gross). *See* condition 5.1 of the proposed permit. Emissions due to startups, shutdowns and malfunctions are not subject to these emission limits. These NSPS limits are equivalent to 0.17 lb SO_2/MMBtu and 0.12 lb NO_x /MMBtu for the Big Stone II supercritical boiler.[4] Assuming that the maximum heat input of the Big Stone II boiler is limited to 6,000 MMBtu/hr[5] and assuming continual operation throughout the year, these limits would equate to potential to emit SO_2 and NO_x as follows:

SO_2: 0.17 lb/MMBtu x 6,000 MMBtu/hr x 8,760 hours/year x 1 ton/2000 lb
= 4,468 tpy SO_2

[4] This assumes a heat rate for supercritical boilers utilizing subbituminous coal of 9,000 Btu/kWh (net). See U.S. EPA, "Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies," July 2006, Exhibit ES-1 at ES-7. Based on the ratio of gross to net MW production for the example supercritical boiler in Exhibit ES-1 of the cited EPA report i.e., 541 MW gross/500 MW net, we then calculated a gross heat rate of 8,318 Btu/kWh (gross) and then converted the NSPS emission limits for SO2 and NOx to equivalent emission rates in lb/MMBtu.

[5] It must be noted that there is no clearly enforceable limit in the permit specifying the maximum hourly heat input of the Big Stone II boiler (i.e., Unit #13). The 2008 draft PSD permit identifies the 6,000 MMBtu/hr heat input of the Big Stone II boiler as a "nominal listing" and for descriptive purposes only. See footnote 1 of Table 1-1 of the 2008 draft PSD permit for Big Stone II.

NO_x: 0.12 lb/MMBtu x 6,000 MMBty/hr x 8,760 hours/year x 1 ton/2000 lb
= 3,154 tpy NO_x

These totals do not reflect true potential to emit of the boiler, since the Big Stone II boiler will not be subject to the NSPS limits during startup and shutdown and since there is no limit on maximum heat input capacity of the Big Stone II boiler identified in the 2008 draft PSD permit for Big Stone II. Thus, these totals likely underestimate true potential to emit of the Big Stone II boiler.

Thus, based on the unit-specific emission limits in the proposed permit, Big Stone II will have a significant emission increase of SO_2 and NO_x (i.e., greater than 40 tpy per the definition of "significant" at 40 C.F.R. §52.21(b)(23)(i)).[6]

The plantwide caps which SDDENR has proposed in the draft Title V permit do not specifically limit the potential to emit of Big Stone II to less than significant levels. At best, the plantwide caps could be construed to limit potential to emit of the new unit to no more than 13,278 tons per year SO_2 and 16,448 tons of NO_x per year. Thus, the plantwide limits will not limit Big Stone II's potential to emit to below PSD significance levels. Big Stone II will produce a significant emissions increase of NO_x and SO_2, contrary to SDDENR's and Otter Tail's statements.

To determine if a significant net emissions increase would occur, the first step in calculating net emissions increase is to determine the increase in emissions from a particular physical change as specified in 40 C.F.R. 52.21 (a)(2)(iv). As discussed in the above section, the increase in SO_2 and NO_x emissions from Big Stone II, to be based on the potential to emit of the new unit, is greater than the PSD significance levels for SO_2 and NO_x.

To calculate net emissions increase at the Big Stone facility, one must add and subtract all contemporaneous and creditable increases and decreases in emissions at the facility. The procedures for this calculation are spelled out in EPA's October 1990 New Source Review Workshop Manual. (Pages A.44 to A.49). Otter Tail's and SDDENR's plantwide cap approach to attempt to exempt the new Big Stone II unit from PSD review for SO_2 and NO_x is flawed with many of the common errors listed by EPA in the New Source Review Workshop Manual that it often encounters in netting determinations, including "using prospective (proposed) unrelated emissions decreases to counterbalance proposed emission increases without also examining all previous contemporaneous emissions changes," "not properly documenting all contemporaneous emissions changes," and "not ensuring that emissions decreases are covered by federally enforceable restrictions, which is a requirement for enforceability." (Workshop Manual at A.44).

---

[6] SDDENR also shows in its Statement of Basis that the potential uncontrolled emissions of the boiler at Big Stone II are greater than significant levels for NO_x and SO_2 (*see* page 5 of the SDDENR Statement of Basis indicating potential uncontrolled emissions of NO_x at Big Stone II as 11,988 tpy and potential uncontrolled emissions of SO_2 at Big Stone II as 56,700 tpy).

The first step in the net emissions increase review is to determine the contemporaneous timeframe, which starts 5 years from the date construction on the modification commences and ends on the date the emissions increase from the new unit occurs. Otter Tail projected on-site construction of Big Stone II to begin in the Spring of 2007 (June 2006 Big Stone II PSD Permit Application at 1-1). Clearly that time has passed and no permit has been issued to authorize commencement of construction. For the purpose of this review, we will rely on the projected construction commencement date of the June 2006 Big Stone II Permit Application. Thus, the contemporaneous period begins in the Spring of 2002. Commercial operation is scheduled for Spring 2011 (June 2006 Big Stone II PSD Permit Application at 1-1). Thus, relying on the dates provided in Otter Tail's June 2006 PSD Permit Application, the contemporaneous period spans from Spring 2002 to Spring 2011.

The second step in the net emissions increase process is to determine which emission units at the source have experienced an increase or decrease in emissions during the contemporaneous period. This would include physical changes or changes in the method of operation that did not require a PSD permit. The Big Stone I unit experienced at least two such increases in emissions between now and Spring 2002.[7] First, the Big Stone I unit began supplying steam to the co-located Northern Lights ethanol plant in October 2002. This was due to both a physical change and change in the method of operation as discussed above in Section I.C.of this comment letter. Second, the Big Stone I unit was debottlenecked to allow an increase in production via the HP-IP Turbine Efficiency Project and associated generator and step-up transformer upgrades, as discussed in Section II.D. of this comment letter. The other potential change in emissions that could be considered are the planned decrease in emissions at Big Stone I via the routing of Big Stone I emissions through the wet scrubber planned for Big Stone II and the "more aggressive" use of the Big Stone I low NO_x burners. (June 2006 Big Stone II PSD Permit Application at ES-2).

The third step is to determine which emission increases and decreases are creditable. The criteria for determining if a change in emissions is creditable include (among other things):

a) The reviewing authority must not have relied on the emission increase or decrease in a previously issued PSD permit.

b) A decrease is only creditable to the extent that it is enforceable as a practical matter from the moment actual construction begins on the proposed modification. The decrease must occur before the proposed emission increase occurs.

c) A source cannot take credit for a decrease that it has to make, or will make, to bring a unit into compliance.

d) A decrease is creditable only if it has approximately the same qualitative significance for public health and welfare as that attributed to the emission increase from the particular change.

(See pages A.47 to A. 48 of New Source Review Workshop Manual, 40 C.F.R. 52.21(b)(3)(iii)(a) and (vi) incorporated by reference into ARSD 74:36:09:02.)

---

[7] Note that for the purposes of this discussion, we are not considering the previous changes to Big Stone I as illegal modifications. As discussed above, netting with emission reductions is not even an option at Big Stone I because the Big Stone I unit was illegally modified and its allowable emissions are thus zero.

As discussed above, Big Stone I is in violation of PSD and thus Otter Tail cannot take credit for any decrease in emissions it has to make to bring Big Stone I into compliance. But for the purposes of this specific comment, we are ignoring this issue.

According to the definition of "net emissions increase" at 40 C.F.R. §52.21(b)(3) incorporated by reference into ARSD 74:36:09:02, "baseline actual emissions" for the purposes of determining creditable increases and decreases are to be determined in accordance with 40 C.F.R. §52.21(b)(48) except that §52.21(b)(48)(i)(c) and (ii)(d) don't apply. Otter Tail did not select a level of "baseline actual emissions" because it did not conduct a netting analysis. For the purposes of this analysis, we will assume that Otter Tail would select 2003-2004 as the Big Stone I baseline actual emissions period, since this was the period of emissions used for its proposal of its NO_x and SO_2 plantwide emissions cap. Thus, Big Stone I's baseline actual emissions are 13,278 tons per year (tpy) SO_2 and 16,448 tpy NO_x. (See page 3-2 of Otter Tail's June 2006 PSD permit application).

Because the baseline actual emissions period is after the modification to Big Stone I to provide steam to the ethanol plant, no increase in emissions due to that modification would be creditable. See 40 C.F.R. §52.21(b)(3)(v). However, the increase in emissions due to the HP-IP Turbine Efficiency project including generator and step-up transformer upgrade project would be creditable, because it occurred in 2005 after the baseline actual emissions period. The level of emissions increase that is creditable from this change is the difference between the Big Stone I emission unit's "actual emissions" as defined in 40 C.F.R. §52.21(b)(21) after the change and the unit's "baseline actual emissions" before the change. As discussed in the New Source Review Workshop Manual, the new level of emissions is the lower of the emission unit's allowable emissions or potential to emit. It is important to note that this determination of creditable increases as well as decreases is based on changes at each emissions unit. *See* definition of "actual emissions" at 40 C.F.R. §52.21(b)(21) which is defined as the actual rate of emissions. . . *from an emissions unit*. Similarly, the definition of "baseline actual emissions" is also based on the emissions rate *at an emissions unit*. See 40 C.F.R. §52.21(b)(48). All of these PSD regulations are incorporated by reference into ARSD 74:36:09:02.

Thus, the "new level of actual emissions" of NO_x at Big Stone I after the HP-IP Turbine project is the unit's allowable emissions, which are based on the unit's maximum heat input capacity and allowable NO_x emission limit as follows[8]:

5,609 MMBtu/hr x 0.86 lb/MMBtu x 8,760 hrs/year = 17,177 tons per year

For SO_2, there are no allowable emission limits. However, for the purpose of this calculation, we will use Otter Tail's statement maximum expected SO_2 emission rate of 0.95 lb/MMBtu (see Attachment 8 to my June 23, 2006 comment letter to SDDENR). Thus the "new level of actual emissions" of SO_2 after the turbine project are:

5,609 MMBtu/hr x 0.95 lb/MMBtu x 8,760 hrs/year = 23,339 tons per year

Thus, the creditable increase from this change is:

SO_2: 23,339 tpy - 13,278 tpy = 10,061 tpy
NO_x: 17,177 tpy - 16,448 tpy = 729 tpy.

We must next evaluate the planned decrease in SO_2 and NO_x emissions at the Big Stone I unit due to the planned routing of Big Stone I emissions through the wet scrubber planned for Big Stone II and the "more aggressive" use of the Big Stone I low NO_x burners. To determine the amount that is creditable, the new level of actual emissions must be less than the old level of baseline actual emissions. 40 C.F.R. §52.21(b)(3)(vi)(a) incorporated by reference into ARSD 74:36:09:02. Again, as discussed above, the definitions of "actual emissions" and "baseline actual emissions" are based on "the actual rate of emissions. . . *from an emissions unit*." In

[8] Note that the definition of "projected actual emissions" including the demand growth exclusion does not apply in determining the emissions increase from the HP-IP Turbine project (including generator and step-up transformer upgrades) in a netting analysis.

addition, for a decrease in actual emissions to be creditable, it must be enforceable as a practical matter. 40 C.F.R. §52.21(b)(3)(vi)(b) incorporated by reference into ARSD 74:36:09:02 .

As stated above, the baseline actual emissions at the Big Stone I unit are assumed to be 13,278 tons per year (tpy) SO_2 and 16,448 tpy NO_x. The actual emissions after the changes of routing the Big Stone I emissions through the wet scrubber and of operating the low NO_x burners more aggressively must be based on the lower of allowable emissions or potential to emit *of the unit*. See 40 C.F.R. §52.21(b)(21)(iii) and (iv). The proposed plantwide caps for NO_x and SO_2 do not limit emissions from the Big Stone I unit. At best, one could interpret the plantwide caps as limiting emissions from Big Stone I to 13,278 tpy of SO_2 and 16,448 tpy of NO_x, in which case there are no emission reductions below baseline actual emissions that can be credited.

There are no other proposed emission limits to ensure practical enforceability of any level of emission reductions at Big Stone I. While SDDENR has proposed a provision that would require Otter Tail to route the emissions from Big Stone I through the wet flue gas desulfurization system for Big Stone II "on or after" the initial startup of Big Stone II (see draft permit condition 5.6), this provision does not ensure the practical enforceability of SO_2 emission reductions at Big Stone I because it does not specify any level of SO_2 reduction that must be achieved at Big Stone I or any unit-specific emission limit. Further, it does not require that such routing of emissions occur before startup of Big Stone II. There are also no other requirements in the draft Title V permit that would effectively limit NO_x emissions from Big Stone I.

Thus, the planned reductions in emissions at Big Stone I are not creditable in the determination of net emissions increase.

The last step in the netting process is to sum all of the creditable emissions increases and decreases to determine if a net emissions increase will occur. For Big Stone, the net emissions increase is as follows:

Potential to emit from the new Big Stone II unit:

4,468 tpy SO_2
3,154 tpy NO_x (See discussion at the beginning of this comment for these calculations)

Creditable increases:
HP-IP Turbine retrofit project:
10,061 tpy SO_2
729 tpy NO_x

Creditable decrease:
0 tpy SO_2
0 tpy NO_x

Net emissions increase of SO_2:
4,468 tpy + 10,061 tpy - 0 = 14,529 tpy SO_2

Net emissions increase of NO_x:
3,154 tpy + 729 tpy - 0 = 3,883 tpy NO_x

Thus, notwithstanding the illegal modifications at Big Stone I and assuming that SDDENR finds that Big Stone I and Big Stone II are one source, then there would be a significant net emissions increase of SO_2 and NO_x at the Big Stone facility. Note that these calculations did not even consider the emission increases from the other emission units associated with the Big Stone II boiler (such as the fire pump, the generator, and the booster pumps).

Consequently, the modification at Big Stone would have both a significant emissions increase in SO_2 and NO_x and a significant net emissions of SO_2 and NO_x. Thus, Otter Tail must meet PSD requirements including BACT for NO_x and SO_2 emissions for the Big Stone II modification.

V. NOTWITHSTANDING THE ILLEGAL EMISSIONS AT BIG STONE I, THE PROPOSED PLANTWIDE LIMIT DOES NOT COMPORT WITH THE PLANTWIDE APPLICABILITY LIMIT PROVISIONS OF THE PSD REGULATIONS

As discussed in detail above, the proposed plantwide caps on SO_2 and NO_x emissions will not ensure that Big Stone II will not result in a significant emissions increase or a significant net emissions increase of NO_x and SO_2. The only other approach that is allowed under the PSD regulations to exempt a new unit from PSD applicability is under the plantwide applicability limit (PAL) provisions of the PSD regulations at 40 C.F.R. §52.21(aa). Indeed, the PAL provisions are the only regulatory provisions of the PSD program that authorize establishment of a plantwide emissions limit to allow new units to be constructed and avoid PSD applicability without conducting an analysis of whether a net emissions increase would occur. Neither SDDENR or Otter Tail have claimed to rely on the PAL provisions as providing legal authority to justify the proposed plantwide emissions cap to avoid PSD review for SO_2 and NO_x for the new Big Stone units. Further, SDDENR has not complied with the PAL provisions of the PSD regulations in proposing the plantwide emission caps.

Specifically, while the PAL provisions do allow an existing source to construct a new unit without triggering PSD if total plantwide emissions stay under the level of the PAL (40 C.F.R. §52.21(aa)(1)(ii) incorporated by reference into ARSD 74:36:09:02), the PAL provisions do not allow for establishment of a PAL concurrent with the proposed addition of a new unit. Indeed, in setting the limit of the PAL, the facility is to add the potential to emit of the new units to the baseline actual emissions of the existing units. 40 C.F.R. §52.21(aa)(6)(ii) incorporated by reference into ARSD 74:36:09:02. If Otter Tail were to do that, the total emission level of the PAL would allow for significant emissions increases as compared to baseline actual emissions and thus the new unit would be subject to PSD.

Further, there are many other requirements to establish a PAL which SDDENR has not addressed. See 40 C.F.R. §52.21(aa)(4), (7), and (12)-(14) incorporated by reference into ARSD 74:36:09:02.

Thus, for all of the above reasons including that a PAL cannot be set up concurrently with the proposed addition of a new unit without triggering PSD, the proposed plantwide cap at Big Stone does not comport with the only provisions in the PSD regulations (i.e., the PAL provisions at 40 C.F.R. §52.21(aa)) that would allow for a plantwide cap on emissions to exempt a new unit from conducting a netting analysis to determine PSD applicability.

VI. NOT WITHSTANDING ALL OF THE ABOVE COMMENTS, SDDENR DID NOT ANALYZE WHETHER BIG STONE COULD COMPLY WITH THE PROPOSED EMISSION CAPS

Not withstanding all of the above issues that would not allow Otter Tail to legally use plantwide caps on SO_2 and NO_x to avoid PSD review for Big Stone II, SDDENR did not even evaluate whether the proposed emission caps could be readily met at Big Stone. Further, Otter Tail did not provide sufficient data to verify how it would meet these emission caps. For example, Otter Tail failed to provide any data on the characteristics of the coal to be burned at Big Stone II. Without such data, SDDENR does not know the uncontrolled SO_2 emission rate and thus cannot determine the level of SO_2 control that will need to be met at the proposed SO_2 scrubber at Big Stone. Otter Tail also provided no details on the planned operation, including expected control efficiency, of the wet scrubber. Further, Otter Tail provided no details on how the NO_x emission cap would be met except to state that the overfire air at Big Stone I would be "more aggressively" operated, a meaningless claim without supporting details. This information is required in order for SDDENR to ensure that the emission caps are technically accurate, which is a requirement to ensure practical enforceability. See 67 Fed.Reg. 80191 (December 31, 2002). Without such a review, what assurance does SDDENR or the public have that Otter Tail isn't simply proposing a sham permit limit?

Thus, even if it was legitimate to exempt Big Stone II from PSD review for NO_x and SO_2 based on the proposed plantwide caps (which, for the numerous reasons described above, we believe are not consistent with the PSD regulations), SDDENR cannot simply impose these plantwide caps without requiring sufficient documentation to be submitted as part of the permit record and a meaningful review conducted to verify that these plantwide caps can indeed be met at Big Stone. It appears the state will simply "take it on faith" that these emission caps will be met. Thus, SDDENR could potentially allow for significant violations of Clean Air Act PSD permitting requirements without providing sufficient documentation in the public record to show that the emission caps can be complied with and that the exemptions are warranted. SDDENR's failure to review the viability of the Big Stone plant to meet the proposed emission caps calls into question the practical enforceability of the proposed plantwide emissions caps.

VII. NOT WITHSTANDING ALL OF THE ABOVE COMMENTS, SDDENR DOES NOT HAVE LEGAL AUTHORITY FOR IMPOSING PLANTWIDE EMISSION CAPS AND EXEMPTING BIG STONE II FROM PSD IN THE PROPOSED TITLE V PERMIT

Notwithstanding all of the above issues that would not allow Otter Tail to legally use plantwide caps on SO_2 and NO_x to avoid PSD review for Big Stone II, SDDENR did not explain its legal authority for creating plantwide caps and exempting Big Stone II from PSD review for SO_2 and NO_x. As discussed above, we find that SDDENR does not have such legal authority because the emissions from Big Stone I are illegal and because, under the PSD regulations, Big Stone II would be a major modification for SO_2 and NO_x because it would have a significant emission increase and a significant net emission increase of these pollutants.

In addition to these fatal flaws in SDDENR's 2008 draft PSD permit allowing Big Stone II to avoid PSD review for SO_2 and NO_x, SDDENR does not have authority to provide for an exemption from PSD permitting for the SO_2 and NO_x emissions from Big Stone II by imposing plantwide caps on SO_2 and NO_x in a Title V permit. SDDENR cites to ARSD 74:36:05:16.01(8) as its authority to impose the plantwide SO_2 and NO_x limits in the draft Title V permit. See Draft Otter Tail Title V Permit, Conditions 9.2 and 9.4. However, ARSD 74:36:05:16.01(8) does not authorize the imposition of plantwide emission caps to allow a new emissions unit to avoid PSD review. ARSD 74:36:05:16.01(8) states that the Title V permit must include (among other requirements of ARSD 74:36:05:16) "[e]mission limits and standards, including operational requirements and limits for all regulated emission units, necessary to assure compliance with all applicable requirements of the Clean Air Act. . . ." ARSD 74:36:05:16.01(8) also requires that the permit include for such emission limits and standards "[t]he reference of authority for each term or condition" and "the applicable requirements from the Clean Air Act." The state cannot use Title V to create limits on potential to emit unless it has some other legal authority to do so.

Further, South Dakota's PSD regulations (ARSD 74:36:09), which incorporate by reference the federal PSD regulations, do not provide for imposition of plantwide emission caps to avoid PSD review except as part of a plantwide applicability limit (PAL)[9]. South Dakota's minor source construction and operating permit program (ARSD 74:36:04) also does not provide for imposition of plantwide emission caps to avoid PSD review, because that program only applies to minor sources and Big Stone is a major stationary source. Indeed, South Dakota's minor source construction and operating permit program does not even provide authority to issue emission limits on Big Stone I alone.

[9] The only other mechanism provided in the PSD regulations to allow a new emissions unit at an existing major source to avoid PSD review is in the definition of "net emissions increase" under which unit-specific emission limitations can be imposed to limit the net emissions increase from the modification of the existing major source to less than significant emission increases.

SDDENR cannot impose an emission limit in a Title V permit to enable Otter Tail to avoid PSD review for the SO_2 and NO_x emissions from Big Stone II and associated emission units when it does not have the underlying legal authority to establish such limits for such purpose. Thus, if SDDENR wanted to limit the potential to emit of the Big Stone units, it would have to do so through a source-specific SIP revision. In any event, SDDENR does not have legal authority to support its proposed plantwide caps on SO_2 and NO_x emissions at Big Stone to allow Big Stone II to avoid PSD review for all of the reasons discussed above.

VIII. NOT WITHSTANDING ALL OF THE ABOVE ISSUES, THE DRAFT TITLE V PERMIT FAILS TO SPECIFY ADEQUATE COMPLIANCE PROVISIONS FOR THE PLANTWIDE CAPS

Not withstanding all of the above illegalities with the plantwide caps on NO_x and SO_2 at Big Stone, Big Stone II cannot avoid PSD review for SO_2 and NO_x because the plantwide caps as proposed in the draft Title V permit lack compliance provisions to ensure practical enforceability. In its Statement of Basis for the draft Title V permit, SDDENR stated that, for the plantwide caps to be enforceable as a practical matter, the limitations "must be written so that it is possible to verify compliance and to document violations when enforcement action is necessary. The limitations should be permanent, contain a legal obligation for the source to adhere to the terms and conditions, be technically accurate and quantifiable, identify an averaging time that allows at least monthly checks, and require a level of recordkeeping, reporting, and monitoring sufficient to demonstrate compliance with the limit."[10] Otter Tail Title V Statement of Basis at 13. Yet, the proposed plantwide caps and other provisions of the draft Title V permit fail to meet these criteria. The draft Title V permit also fails to meet the criteria that EPA has identified in various documents as necessary to ensure practical enforceability.

[10] EPA has also specified requirements for practical enforceability in various rulemakings and in guidance documents, including 54 Fed.Reg. 27274 (June 28, 1989), 67 Fed.Reg. 80189-90 (December 31, 2002), and numerous guidance memos in EPA's New Source Review Policy and Guidance database at http://www.epa.gov/region07/programs/artd/air/policy/search.htm. The requirements for practical enforceability to limit potential to emit are also addressed in *U.S. v. Louisiana-Pacific Corporation*, Civil Action No. 86-A-1880 (D. Colorado, March 22, 1988).

The plantwide caps apply to the Big Stone I and II boilers, the fire pump, generator, and booster pumps for Big Stone II, and the auxiliary boiler, steam heating boiler and diesel generator (Units #2, 3 and 4) at Big Stone I. The draft Title V permit indicates that the SO_2 and NO_x emissions from Big Stone I and II will be monitored by the continuous emission monitoring systems (CEMS) at the Big Stone I and II boilers. Conditions 9.2 and 9.4 of the draft Title V permit. However, the permit fails to discuss how emissions will be determined when the CEMs are down. Clearly, there will be times when the CEMs are down, and the draft Title V permit allows the CEMs to be down for system breakdowns, repairs, calibration checks, zero and span adjustments, and when the units are not in operation. Condition 8.4 of the draft Title V permit. The permit must include specific provisions that detail how emissions from the boilers during CEM down time will be determined, and such procedures must ensure there is no potential for underestimates of emissions. The draft Title V permit must also require collection of other data that can be used to verify emissions from the boilers when the CEMs are down, such as types and amounts of fuel usage on a daily basis, hourly heat input, daily hours of operation, information on startups, shutdowns and malfunctions including time periods during which SO_2 or NOx controls were bypassed or shutdown, etc. While the draft Title V permit requires collection of some of this data on an annual basis (Condition 5.6 of the draft Title V permit), this data collection period is not consistent with the rolling 12-month average SO_2 and NO_x cap. The draft Title V permit must also describe how this data is to be used to determine emissions from the boilers during CEM downtime.

With respect to the other emission units under the cap, it is clear that an annual cap on emissions is not practically enforceable at these units that do not have CEMs. Therefore, SDDENR must impose shorter term emission limits on these sources, apportion some of the plantwide emissions cap to these sources in a manner consistent with the short term emission limits that are imposed, and reduce the cap accordingly for the boilers so that overall emissions do not exceed the level of the proposed plantwide cap. SDDENR has only required a one time performance test for NO_x emissions from Units #2, 3, 4, 14, 15, 25, and 33. Condition 7.8 of draft Title V permit. Given that these emission units can be fired on more than one type of fuel as well as that NO_x emissions can very even with the same type of fuel for various reasons, a one time performance test is wholly inadequate to develop a NO_x emission rate for these units. Testing must be more frequent, there must be testing of all types of fuels that can be fired, and there must be recordkeeping and reporting of the amount and type of fuel being fired and of operating times for each fuel type being fired. While the draft Title V permit requires collection of some of this data on an annual basis (Condition 5.6 of the draft Title V permit), this data collection period is not consistent with the rolling 12-month average NO_x cap. Further, the draft Title V permit fails to specify the NO_x stack performance test for each of these units. The units of the NO_x emission rate derived from the stack tests are also unclear. While SDDENR has stated in Condition 9.4 of the draft Title V permit that the results of the stack test and the amount of fuel burned in each unit will be used to determine NO_x emissions from each unit, the permit lacks any details on how NO_x emissions are to be calculated from that data. For example, it is not clear that the stack performance test result will be in units of lb NO_x per unit of fuel burned. If the units are in lb/MMBtu, then how is Otter Tail to determine heat input of the fuel burned based on the amount of fuel burned? Further, there are no details as to whether Otter Tail is to determine emissions from these other units on a daily, weekly or monthly basis. All of this needs to be spelled out in the permit.

With respect to the SO_2 testing for the other units, the draft Title V permit only requires one initial grab sample to determine the sulfur content of the distillate oil or biodiesel for Units 2, 3, and 4 (the boilers and generator associated with Big Stone I). Condition 7.9 of the draft Title V permit. It is not even clear if both fuels need to be tested. One performance test over the life of the source is not sufficient to accurately determine emissions for these sources. For Units 14, 15, 25, and 33 (the fire pump, generator and booster pumps associated with Big Stone II), the draft Title V permit does not even require a grab sample test of the fuel. Instead, a fuel supplier certification is to be obtained, and such certification does not even need to identify the sulfur content of the fuel.[11] See Condition 7.10 of the draft Title V permit. Yet, the permit requires SO_2 emissions to be determined for these emission units based on the sulfur content of the fuel and the amount of fuel burned. Not only is a one time statement from the fuel supplier wholly inadequate to ensure accuracy of emissions calculations for these units over the life of these units, but it is also not clear that the information provided by the fuel supplier will be sufficient to accurately quantify SO_2 emissions from these units. The draft Title V permit must provide details on how the SO_2 emissions are to be calculated from this data and from the grab sample data collected for Units 2, 3, and 4. In addition, testing must be much more frequent, there must be testing of all types of fuels that can be fired, and there must be recordkeeping and reporting of the amount and type of fuel being fired and of operating times for each fuel type being fired. While the draft Title V permit requires collection of some of this data on amount of fuel burned and operating hours on an annual basis (Condition 5.6 of the draft Title V permit), this data collection period is not consistent with the rolling 12-month average SO_2 cap. Further, the permit needs to describe how emissions are to be determined from these units (e.g., on a daily, weekly, or monthly basis) and how compliance with the 12-month rolling plantwide cap is to be assessed. All of this needs to be spelled out in the permit to ensure an accurate and replicable assessment of compliance can be made.

In addition, the draft Title V permit only requires compliance with the caps when the Big Stone II boiler begins firing pulverized coal. Given that the boiler will startup on diesel fuel or biodiesel and given that startups must be included in determining compliance with the emission caps, the Title V permit must require compliance with the SO_2 and NO_x emission caps on and after the first date <u>any fuel</u> is combusted in the Big Stone II boiler, or in any of the other units associated with Big Stone II.

Also, it is not clear how emissions from Big Stone I will be monitored during the times its flue gas is not being routed to the wet scrubber (since presumably its emissions will vent through the Big Stone II stack after going through the wet scrubber). It is also not clear whether any partial bypass of the scrubber will be allowed. The permit needs to make clear that CEMS at Big Stone I must be used at all times, in addition to the CEMS at Big Stone II, to show compliance with the plantwide cap.

---

[11] The draft Title V permit simply requires a statement from the fuel supplier that the sulfur content does not exceed 0.0015 weight percent sulfur. Condition 7.10.3 of the draft Title V permit. The draft Title V permit also requires a grab sample test if no fuel supplier certification can be obtained.

The draft Title V permit also is unclear on the repercussions for a violation of the plantwide cap. The permit must make clear that, if Big Stone's rolling 12-month tally of SO_2 or NO_x emissions ever exceeds the plantwide SO_2 or NO_x caps, then the Big Stone facility must meet PSD requirements for those pollutants as though construction had not yet commenced. The permit must also require reporting to SDDENR on a monthly basis on the 12-month rolling average total SO_2 and NO_x emissions from the Big Stone units so that, if there is an exceedance of the plantwide cap, SDDENR can immediately take action to require Otter Tail to obtain a PSD permit for the facility.

Also, the language in Conditions 9.2 and 9.4 is vague in stating that any relaxation "in the permit" that increases "applicable emissions" equal to or greater than the cap shall trigger a full PSD review. Instead of using confusing terms, the permit should just clearly state that any relaxation in these plantwide caps on emissions would subject Big Stone II to PSD permitting as though construction had not yet commenced. 40 C.F.R. §52.21(r)(4).

The permit also fails to require the company to retain records on plantwide SO_2 and NO_x emissions for the life of the Big Stone II source. Given that failure to obtain a PSD construction permit is a continuing violation and that the only way the state, EPA and the public have to assess whether Otter Tail truly controls emissions of both Big Stone I and II and the associated emission units below the plantwide caps is by evaluation of rolling 12-month average emissions totals, it is imperative that records on 12-month rolling average plantwide emissions of SO_2 and NO_x be retained by Otter Tail for the for the life of the source and be submitted to and retained by SDDENR for the life of the source.

For all of the above reasons, the plantwide caps proposed by SDDENR are not enforceable as a practical matter, and thus - even if Big Stone II could legitimately avoid PSD review for SO_2 and NO_x via plantwide caps - the plantwide caps are not sufficient to exempt Big Stone II from PSD for SO_2 and NO_x.

IX. SDDENR DID NOT VERIFY THAT THE EMISSION REDUCTIONS AT BIG STONE I WILL HAVE THE SAME QUALITATIVE SIGNIFICANCE AS THE EMISSION INCREASES AT BIG STONE II

For all of the reasons discussed above, Big Stone II cannot be legitimately exempt from PSD review for SO_2 and NO_x. Notwithstanding those issues, SDDENR cannot allow Big Stone II to net out of PSD review without an analysis that the emission reductions at Big Stone I have the same qualitative significance for public health and welfare as the emission increases at Big Stone II. See the definition of "net emissions increase" at 40 C.F.R. §52.21(b)(3)(vi)(c) incorporated by reference into ARSD 74:36:09:02. This analysis must take into account the dispersion characteristics of Big Stone I as compared to the dispersion characteristics of Big Stone II, which will differ due to size of the units, the unit locations, a more saturated plume on Big Stone II, etc.

Without such an analysis, there are no assurances that this requirement for allowing Otter Tail to net Big Stone II out of PSD review for SO_2 and NO_x has been met.

X. GLOBAL CLIMATE CHANGE: The 2008 Draft PSD Permit Does Not Address Carbon Dioxide And Other Greenhouse Gas Emissions

A. The Proposed Plant Will Contribute To The Climate Change Crisis

1. The Climate Change Crisis

Global warming is a threat to public health, welfare, and the environment. The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) in 1988. The IPCC's mission is to comprehensively and objectively assess the scientific, technical and socio-economic information relevant to human-induced climate change, its potential impacts, and options for adaptation and mitigation. See *http://www.ipcc.ch/about/index.htm.* The IPCC completed its First Assessment Report in 1990, its Second Assessment Report in 1995, and its Third Assessment Report in 2001. *See http://www.ipcc.ch/ipccreports/assessments-reports.htm.* The IPCC recently finalized its Fourth Assessment Report, "Climate Change 2007." *Id.* The components of the Fourth Assessment Report include a set of three Working Group reports and a Synthesis Report. The IPCC has also released summaries of its three working group reports for policymakers that contributed to the Fourth Assessment Report.

The summaries include the following significant conclusions that are relevant to the state of South Dakota:[12]

- By mid-century, annual average river runoff and water availability are projected to decrease by 10-30% over some dry regions at mid-latitudes and in the dry tropics, some of which are presently water stressed areas;

- In the course of the century, water supplies stored in glaciers and snow cover are projected to decline, reducing water availability in regions

[12] IPCC, 2007: Summary for Policymakers. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA (Attachment); IPCC, 2007: Summary for Policymakers. In: *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,* M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 7-22 ; IPCC, 2007: Summary for Policymakers. In: *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,* M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 7-22. IPCC, 2007: Summary for Policymakers. In: *Climate Change 2007:* Synthesis Report, *Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA

supplied by meltwater from major mountain ranges, where more than one-sixth of the world population currently lives;

- Warming in the mountains of western North America is projected to cause decreased snowpack, more winter flooding, and reduced summer flows, exacerbating competition for over-allocated water resources;

- Disturbances from pests, disease and fire are projected to have increasing impacts on North American forests, with an extended period of high fire risk and large increases in area burned;

- In North America, major challenges are projected for crops that are near the warm end of their suitable range or depend on highly utilized water resources;

- Approximately 20-30% of plant and animal species assessed so far are likely to be at increased risk of extinction if increases in global average temperatures exceed 1.5-2.5 Degrees Celsius;

- Even the most stringent mitigation efforts cannot avoid further impacts of climate change in the next few decades, which make adaptation essential, particularly in addressing near term impacts. Unmitigated climate would, in the long term, be likely to exceed the capacity of natural, managed and human systems to adapt.

- Global greenhouse gas (GHG) emissions have grown since pre-industrial times, with an increase of 70% between 1970 and 2004;

- The largest growth in global GHG emissions between 1970 and 2004 has come from the energy supply sector (an increase of 145%);

- Fuel switching from coal to gas, renewable heat and power (hydropower, solar, wind, geothermal and bioenergy), and early applications of carbon capture and storage (e.g., storage of removed carbon dioxide from natural gas) are key mitigation technologies and practices currently commercially available.

The reports authoritatively document the adverse environmental and socio-economic impacts of global warming at local, regional, national and global scales, and the primary role of the burning of fossil fuels, including coal, in causing global warming. The evidence in the IPCC reports conclusively shows that greenhouse gases, including CO_2, endanger public health, welfare, and the environment.

Many researchers have highlighted the severity of the threats posed by global warming. A recent study found that from 2000 to 2006, the average emissions growth

rate was 3.3% per year, compared to 1.3% per year during the 1990s.[13] The study estimates that global warming is happening faster than expected, and attributes this to recent growth in the world economy, increasing carbon intensity, and decreasing efficiency in carbon sinks on land and in oceans.[14] This evidence suggests that even the estimates of the IPCC are too conservative, and that the threat of global warming may be even more imminent than originally anticipated.

The World Health Organization reported in 2005 that, over the past 30 years, global warming has contributed to 150,000 deaths annually.[15] EPA has already recognized this and other potentially adverse effects of climate change on public health:

> Throughout the world, the prevalence of some diseases and other threats to human health depend largely on local climate. Extreme temperatures can directly lead to loss of life, while climate-related disturbances in ecological systems, such as changes in the range of infective parasites, can indirectly impact the incidence of serious infectious diseases. In addition, warm temperatures can increase air and water pollution, which in turn harm human health.[16]

One threat identified by EPA is fatalities due to extreme temperatures. Indeed, increased heat waves lead to heart failure and other heat-related deaths.

Global warming also exacerbates the problem of ground-level ozone ("smog"), intensifying the public health dangers associated with air quality violations. Breathing ozone can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion, and repeated exposure can lead to bronchitis, emphysema, asthma, and permanent scarring of lung tissue.[17] In addition, global warming will result in increased surface water evaporation, which in turn could lead to more wildfires and increased dust from dry soil, both of which generate particulate matter emissions. Particulate matter triggers a host of health problems, including aggravated asthma, development of chronic bronchitis, irregular heartbeat, nonfatal heart attacks, and premature death in people with heart or lung disease.[18]

---

[13] Canadell, J.G., *et al.*, *Contributions to Accelerating Atmospheric CO_2 Growth from Economic Activity, Carbon Intensity, and Efficiency of Natural Sinks*, Proceedings of the National Academy of Sciences, October 25, 2007.
[14] *Id.*
[15] Jonathan A. Patz, *et al.*,*Imp act of Regional Climate Change on Human Health*, Nature, 438, 310-317, November 17, 2005, *available at* http://www.nature.com/nature/journal/v438/n7066/full/nature04188.html.
[16] EPA, *Climate Change, Health and Environmental Effects*, December 20, 2007. *See also*, Centers for Disease Control, *CDC Policy on Climate Change and Public Health*
[17] EPA, *Ground-Level Ozone: Health and Environment*, March 6, 2007.
[18] EPA, *Particulate Matter: Health and Environment*, January 17, 2008.

2. The Proposed Facility's Exacerbation Of The Climate Crisis

The draft PSD permit for Big Stone II does not address carbon dioxide (CO_2) or other greenhouse gas emissions. Due to its sheer size, the power plant would contribute significantly to global warming pollution. Big Stone II has a potential to emit almost 5.5 million tons of CO_2 for each year of operation, totaling almost 275 million tons over its 50-year operational life.[19] Despite this, SDDENR has failed to require an emission limitation or any other design, equipment, work practice or operational standards for CO2. As explained below, this omission is contrary to the requirements of the Clean Air Act, case law, and federal and state regulations. SDDENR's failure to address CO_2 emissions for this massive new and long-lived source of greenhouse gas pollution is erroneous and unacceptable.

B. States, The Congress, And The Supreme Court Are Taking Action To Address The Climate Crisis

Numerous levels of representative government are taking action to address the climate crisis, setting very ambitious targets for reducing greenhouse gas pollution. The courts are taking notice, and Congress is gearing up to legislate solutions to the crisis.

It begins with the states. California has enacted the landmark "Global Warming Solutions Act of 2006," which seeks to reduce greenhouse gas emissions to 80 percent below 1990 levels by 2050. California and Washington have both adopted carbon dioxide emission limitations of 1100 pounds per megawatt-hour for power plants. Montana recently adopted a minimum sequestration mandate, providing that new coal plants must capture and sequester a minimum of 50% of the carbon dioxide produced. The table below summarizes the carbon dioxide emission standards and limits adopted by these states.

[19] Potential to emit CO_2 calculated using EPA's CO_2 emission factor of 209 lb/MMBtu for supercritical boilers utilizing subbituminous coal (from EPA's July 2006 Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies, p. 3-22) and assuming maximum heat input capacity of the boiler and continual operation.

Table 1: Western State Carbon Dioxide Emission Limitations (as of December 2007)

STATE LAW	STANDARD	APPLICABILITY	EFFECTIVE DATE
State of Montana, HB 0025, signed into law by Gov. Schweitzer on May 14, 2007	Mandate for the facility to capture and sequester a minimum of 50% of the carbon dioxide produced.	Applies to new electric generating units "primarily fueled by coal."	January 1, 2007
State of Washington, SB 6001, signed into law by Gov. Gregoire on May 3, 2007	The lower of 1100 pounds of greenhouse gases per megawatt-hour or the average available GHG emission output of new combined cycle natural gas thermal electric generation turbines commercially available and offered for sale.	Triggered upon long-term financial commitments: (1) new ownership interest or upgrade to baseline power plant, or (2) new/renewed contract with a term or five years or more.	Standard takes effect on July 1, 2008
State of California, SB 1368, signed into law by Governor Schwarzenegger on Sept. 29, 2006	Greenhouse gas emissions performance standard shall be established by administrative agency at a rate that is no higher than the rate of emissions of greenhouse gases for combined-cycle natural gas baseload generation; CPUC recently established 1100 pounds of CO_2 per MW-hour as the operative standard	Applies to long-term contracts for baseload power of five years or longer	CPUC rules for IOUs take effect February 1, 2007

Numerous states are also using executive or administrative powers to begin tackling climate change. Through a 2006 executive order, Arizona is targeting emissions reductions of 50 percent below 2000 levels by 2040. New Mexico's target of 75 percent emissions reduction below 2000 levels by 2050 will be accomplished through increased

state use of renewable energy, a "clean cars" program, tax incentives for biofuels, and investment in energy efficient buildings.

Many states are also regulating carbon pollution from auto tailpipe emissions, led by California's adoption of AB 1493 (Pavley). For example, New Mexico and Oregon have adopted the California tailpipe standards.

Additionally, five Western states have formed a regional compact to cooperate on reducing carbon emissions, using measures like cap-and-trade mechanisms to achieve dramatic reductions. These Western states are emulating a 2003 compact among eleven Northeast and Mid-Atlantic states to reduce greenhouse gas emissions from power plants.[20]

Many states have enacted "renewable energy portfolio standards (REPS)," which typically require a percentage of the state's energy to be obtained from renewable sources such as geothermal, wind, and solar power. These include South Dakota's neighboring states of Montana, Minnesota, and Iowa.[21] Many cities including the city of Huron, South Dakota have joined more than 400 U.S. communities in signing the U.S. Mayors Climate Protection Agreement, which commits each city, among other things, to meet the Kyoto Protocol carbon reduction targets.[22]

Congress is now actively considering regulating carbon emissions, with several bills having been offered in 2007.[23] It is widely anticipated, including by the energy industry, that some form of federal carbon legislation will take effect well before Big Stone II becomes fully operational.[24]

If such legislation confers "grandfathered-in" status upon existing or already-approved coal plants, then approval of Big Stone II might constrain South Dakota's flexibility; simply put, the state might have less carbon allowances to allocate to other carbon emitters. And even if Congressional action does not confer "grandfather" status on approved plants, it is in South Dakota's interest to expressly preserve its rights and flexibility.

In April 2007, the U.S. Supreme Court issued a decision that recognized the severity of the climate change crisis, and EPA's obligation to confront the problem. As

---

[20] *See* Lisa Stiffler, *Gregoire Joins the West's War on Warming*, Seattle Post-Intelligencer (February 27, 2007); *see also* U.S. Climate Action Network, *State Policy*, http://www.usclimatenetwork.org/stateaction (last visited January 22, 2008).

[21] *See* Pew Center Global Climate Change at: http://www.pewclimate.org/what_s_being_done/in_the_states/rps.cfm (last visited January 22, 2008) (providing information on state REPS nationwide, including South Dakota).

[22] *See* Seattle Office of the Mayor, *U.S. Mayors Climate Protection Agreement*, http://www.seattle.gov/mayor/climate/default.htm#what (last visited January 22, 2008).

[23] *See, e.g.*, Joe Lieberman and John McCain, *The Turning Point on Global Warming*, The Boston Globe, February 13, 2007; J.R. Pegg, *U.S. Congress Warming to Climate Debate*, Environment New Service, January 30, 2007.

[24] *See, e.g.*, Zachary Coile, *Energy industry preparing for limits*, Seattlepi.com, August 28, 2006 .

discussed in more detail below, the Supreme Court held, in *Massachusetts v. EPA*, 127 S. Ct. 1438 (2007), that the "unambiguous" definition of "air pollutants" includes carbon dioxide and other greenhouse gases. This case was initiated by a dozen states and numerous environmental organizations, and the Supreme Court's ruling is widely viewed as a landmark recognition of the global warming crisis by the judiciary. The Court, even without the benefit of the most recent IPCC Summary Reports, noted that the "[t]he harms associated with climate change are serious and well recognized." *Id.* at 1455. The Court also acknowledged "the enormity of the potential consequences associated with man-made climate change," *id.* at 1458, and the contribution of carbon dioxide emissions to global warming, *id.* at 1457-58.

We comment in the next section on steps that the SDDENR must take to address carbon emissions from Big Stone II. Even if it concludes that those steps are not required, which we respectfully insist would be contrary to law, SDDENR should either temporarily stay the Big Stone II permit process or include a "reopener" reservation-of-rights provision in the Big Stone II permit. A stay would ensure that South Dakota does not foreclose its options to address greenhouse gas pollutants just as Congress appears poised to act. Alternatively, a "reopener" reservation of rights provision should be included in the Big Stone II permit, putting the applicant on clear notice that its carbon dioxide emissions will be regulated if authority to do so under the Clean Air Act is established by federal legislation; this permit provision should serve as an express reservation of rights by South Dakota to revisit the Big Stone II permit to regulate the facility's carbon dioxide emissions.

C. The Draft PSD Permit Should Be Denied Under South Dakota Law Because Carbon Dioxide Pollution From Big Stone II Would Be Injurious To Human Health And Welfare

South Dakota law defines the public policy of the state "to achieve and maintain reasonable levels of air quality which will protect human health and safety, prevent injury to plant and animal life and property, foster the comfort and convenience of its inhabitants, promote the economic and social development of the state and, to the greatest degree practicable, facilitate the enjoyment of the natural attractions of the state." SDCL 34A-1-1. Further, South Dakota law provides "To these ends it is the purpose of this chapter to provide for a coordinated state-wide program of air pollution prevention, abatement and control, for an appropriate distribution of responsibilities among the state and local units of government, and to facilitate cooperation across jurisdictional lines in dealing with problems of air pollution not confined within single jurisdictions, and to provide a framework within which all values may be balanced in the public interest." *Id.* These provisions confer broad authority to the state in the decisions it makes to implement South Dakota air quality laws and regulations.

Moreover, it is clear that greenhouse gas emissions are included in the statutory definition of "air pollution." Specifically, "air pollution" is defined under South Dakota law as:

> the presence in the outdoor atmosphere of one or more air contaminants in such quantities and duration as is or tend to be injurious to human health or welfare, animals or plant life, or property, or would interfere with the enjoyment of life or property. . . .

SDCL 34A-1-2(2).

South Dakota law defines "air contaminant" as "dust, fumes, mist, smoke, other particulate matter, vapor, gas, odorous substances, radioactive materials as defined in chapter 34-21, or any combination thereof. . . ." SDCL 34A-1-2(1). These definitions plainly encompass greenhouse gas emissions such as CO_2.[25]

As discussed above, evidence abounds that carbon dioxide is present in the atmosphere at concentrations that will be injurious to human health and welfare, animals or plant life, or property or the enjoyment of life or property. The increasing concentration of CO_2 in the atmosphere certainly qualifies as "air pollution" under the definition in SDCL 34A-1-2(2). Preventing further impacts from CO_2 emissions clearly falls within the realm of South Dakota law.

The federal Clean Air Act's definition of public welfare corroborates the premise that greenhouse gas pollution is properly regulated as a threat to public welfare. The Clean Air Act provides a broad definition of "welfare" that encompasses a host of environmental ills:

> All language referring to effects on welfare includes, but is not limited to, effects on soils, waters, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being, whether caused by transformation, conversion, or combination with other air pollutants.

42 U.S.C. § 7602(h) (2006). Of particular importance here, "welfare" refers to "effects on . . . weather . . . and climate." *Id.* Thus, the most basic effect of global climate change — an increase in the Earth's average mean temperature — is directly implicated as an effect on public welfare under the Act. As discussed above, global climate change is already resulting in well-documented impacts on climate and weather, including air and ocean temperature increases, widespread melting of snow and ice, changes in precipitation amounts and wind patterns, and more frequent extreme weather events such as hurricanes, heat waves, floods, and droughts.

---

[25] By comparison, the federal Clean Air Act defines "air pollutant" as "any air pollution agent . . . including any physical, chemical, radioactive . . . substance or matter which is emitted into or otherwise enters the ambient air." Clean Air Act § 302, 42 U.S.C. § 7602(g) (2006). The Supreme Court has held that CO_2 is unambiguously an "air pollutant" under this definition. *Massachusetts v. EPA*, 127 S. Ct. 1438, 1460 (2007).

Other states have begun to recognize the key link between greenhouse gas pollution and the protection of public welfare. The Secretary of the Kansas Department of Health and Environment recently denied an air permit application for two large new coal-fired boilers, pursuant to a statutory provision authorizing him to take action to protect the health of persons or the environment where the emission of air pollution presents a substantial endangerment to the health of persons or the environment.[26] In an opinion requested by the Secretary, the Kansas Attorney General wrote:

> [I]t is our opinion that *if* the secretary makes a factual determination that a particular emission constitutes air pollution and that such emission presents a substantial endangerment to the health of persons or the environment, *then* even in the absence of federal or state regulations setting limitations for a particular pollutant, [the Kansas statute] authorizes the secretary to take actions as necessary to protect the health of persons or the environment. Such actions may include denying an air quality application on the basis of anticipated emissions of a particular pollutant . . . .

Op. Kan. Att'y Gen. No-2007-31 (Sept. 24, 2007) at 3.[27] The Governor and the Secretary of the Kansas Department of Health and Environment appropriately recognized the imminent threat of global warming to citizens of that state and the United States. She recognized also the need for concrete and deliberate action to address global warming – understanding that the only way to begin solving the problem is to begin scrutinizing each decision about a major new source of greenhouse pollutants. Kansas took the responsible course of action, and South Dakota should do no less.

Taken together, both state and federal law lead to the ineluctable conclusion that CO_2 emissions must be controlled because of their threat to public health and welfare. Because Big Stone II would be a large new source of carbon dioxide, because carbon dioxide pollution contributes to global warming, and because global warming is injurious to human, plant and animal life, the Secretary of the SDDENR should exercise his authority under the statutory and regulatory provisions discussed above to deny the Big Stone II air quality permit application. As a matter of law and public policy, denial of the requested Big Stone II permit is the only responsible decision.

D. Alternatively, The Draft PSD Permit Must Address Carbon Emissions

The undersigned respectfully submit that the only responsible and lawful course of action is to deny the Big Stone II permit application. Alternatively, and for the sake of argument, there are four ways in which the draft air permit should have addressed carbon emissions: (1) as a regulated pollutant that must not exceed emission limits corresponding to "best available control technology" (BACT); (2) as a collateral environmental impact

---

[26] *See* Kansas Department of Health and Environment, *KDHE Denies Sunflower Electric Air Quality Permit*, October 18, 2007.

[27] Paul J. Morrison, Kansas Attorney General, ATTORNEY GENERAL OPINION NO. 2007-31, September 24, 2007.

to be weighed in the BACT analysis; (3) as part of the necessary Endangered Species Act consultation process; and (4) in the alternatives analysis under Clean Air Act section 165. Only by analyzing how each of these independent requirements are met in the face of the massive carbon emissions to be generated by this project can the source claim to have complied with federal and state air permitting laws.

1. SDDENR Must Conduct A BACT Analysis And Set A BACT Emission Limit For CO_2.

The proposed Big Stone II project has a potential to emit almost 5.5 million tons of CO_2 for each year of operation, totaling almost 275 million tons over its 50-year operational life.[28] Despite this, SDDENR has failed to conduct a best available control technology (BACT) analysis for CO2, and the draft PSD permit does not contain a BACT-determined emission limitation or any other design, equipment, work practice or operational standards for CO2. This omission is contrary to the requirements of the Clean Air Act, case law, and federal and state regulations.

Section 165 of the Clean Air Act requires that "each air pollutant subject to regulation under the Act" that a proposed source will emit in significant quantities must undergo a BACT analysis and be assigned a permit emission limit that corresponds to the best available control technology for that pollutant. 42 U.S.C. § 7475(a)(4); *see also* 40 C.F.R. § 52.21(b)(50) (2007) incorporated by reference into ARSD 74:26:09:02.[29] Likewise, the South Dakota regulations define "[r]egulated NSR pollutant" to include, *inter alia*, "[a]ny pollutant that otherwise is subject to regulation under the Act," excepting only "hazardous air pollutant[s] regulated under 42 U.S.C. § 7412." 40 C.F.R. §52.21(b)(50)(iv) incorporated by reference into ARSD 74:36:09:02.

(a) Carbon Dioxide Is An "Air Pollutant"

On April 2, 2007, the Supreme Court affirmed in *Massachusetts v. EPA* that carbon dioxide and other greenhouse gases are "pollutants" under the Clean Air Act. With respect to carbon dioxide, the Supreme Court construed the Clean Air Act as follows:

> The Clean Air Act's sweeping definition of "air pollutant" includes "*any* air pollution agent or combination of such agents, including *any* physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air . . . ." §7602(g). On its face, the definition embraces all airborne compounds of whatever stripe, and underscores that intent

[28] Potential to emit CO_2 calculated using EPA's CO_2 emission factor of 209 lb/MMBtu for supercritical boilers utilizing subbituminous coal (from EPA's July 2006 Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies, p. 3-22) and assuming maximum heat input capacity of the boiler and continual operation.

[29] The D.C. Circuit's opinion in *Alabama Power v. Costle*, provides further clarity regarding the appropriate interpretation of the statutory languages. 636 F.2d 323, 403 (D.C. Cir. 1979) (explaining that section 165 unambiguously "applies PSD and BACT immediately to each type of pollutant regulated for any purpose under any provision of the Act. . .").

through the repeated use of the word "any." Carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons are without a doubt "physical [and] chemical . . . substance[s] which [are] emitted into . . . the ambient air." The statute is unambiguous.

127 S.Ct. at 1460 (footnotes omitted). Thus, there is no dispute that carbon dioxide is an "air pollutant" under the Clean Air Act.

(b) Carbon Dioxide Is Subject To Regulation Under The Act

As discussed above, a pollutant that is "subject to regulation," as it is used in the Act and the PSD regulations, must get a BACT-based permit limit. This holds true not only for pollutants that are currently regulated, but also for pollutants that EPA and the states have the authority or the obligation to regulate. Carbon dioxide is "subject to regulation" under either test—it is currently regulated and is subject to further regulation under the Act.

i. Carbon Dioxide Is Currently Regulated Under The Act

Section 821(a) of the Clean Air Act Amendments of 1990 directed EPA to promulgate regulations to require certain sources, including coal-fired power plants, to monitor carbon dioxide emissions and report monitoring data to EPA. 42 U.S.C. § 7651k note. In 1993, EPA promulgated these regulations, which are set forth at 40 C.F.R. Part 75. The regulations generally require monitoring of carbon dioxide emissions through the installation, certification, operation and maintenance of a continuous emission monitoring system or an alternative method, 40 C.F.R. §§ 75.1(b), 75.10(a)(3); preparation and maintenance of a monitoring plan, *id.* § 75.33; maintenance of certain records, *id.* § 75.57; and reporting of certain information to EPA, including electronic quarterly reports of carbon dioxide emissions data, *id.* §§ 75.60 – 64. Section 75.5 of the federal regulations prohibits operation of an affected source in the absence of compliance with the substantive requirements of part 75, and provides that a violation of any requirement of part 75 is a violation of the Clean Air Act. Thus, carbon dioxide is currently regulated under the Acid Rain provisions of the Act. *See Buckley v. Valeo*, 424 U.S. 1, 66-67 (1976) (finding record-keeping and reporting requirements to be regulation of political speech).

Significantly, Congress used the very same term – "regulation" – in sections 165(a)(4) and 821 of the Clean Air Act. In section 165 Congress expressly and unambiguously makes BACT a requirement for any pollutant "subject to *regulation*," 42 U.S.C. § 7475(a)(4) (emphasis added), and in section 821 Congress requires EPA to establish "*regulations*" requiring monitoring, recordkeeping, and reporting for CO_2 emissions, *id.* § 7651k note (emphasis added). Basic tenets of statutory interpretation demand that these two provisions must be read consistently – "regulation" used in one

section of the Act cannot be appropriately understood to mean something different than the same term used elsewhere.[30]

A more narrow reading of "regulation" for purposes of section 165(a)(4) of the Act to include only those measures that restrict emissions would be especially inappropriate, as the Act already includes terminology that is specifically intended to identify such requirements. Specifically, 42 U.S.C. §§ 7602(k), 7651d(a)(1), and 7617(a)(7) establish and use the terms "emission limitation" and "emission standard" to specifically refer to regulatory requirements that limit or restrict emissions. *See also* 42 U.S.C. § 7617(a)(5) (distinguishing between regulations that establish emission standards and "other" regulations). Thus, if Congress had intended for BACT to apply only where a pollutant is subject to an emission limitation or emission standard, it would have done so expressly.

In addition to section 821 of the Act and its implementing regulatory requirements, greenhouse gases such as CO_2 and methane are also regulated as a component of landfill gases. EPA has promulgated emission guidelines and standards of performance for municipal solid waste (MSW) landfill emissions. 40 C.F.R. §§ 60.33c, 60.752. "MSW landfill emissions" are defined as "gas generated by the decomposition of organic waste deposited in an MSW landfill or derived from the evolution of organic compounds in the waste." 40 C.F.R. § 60.751. EPA has specifically identified CO_2 as one of the components of the regulated "MSW landfill emissions." *See* Air Emissions from Municipal Solid Waste Landfills – Background Information for Final Standards and Guidelines, U.S. EPA, EPA-453/R-94-021 (Dec. 1995), available at http://www.epa.gov/ttn/atw/landfill/landflpg.html (explaining "MSW landfill emissions, or [landfill gas], is composed of methane, CO2, and NMOC."). Thus, CO_2 is regulated through the landfill emission regulations at 40 C.F.R. Part 60 Subparts Cc, WWW. *See also* 56 Fed. Reg. 24468 (May 30, 1991) ("Today's notice designates air emissions from MSW landfills, hereafter referred to as 'MSW landfill emissions,' as the air pollutant to be controlled").

In sum, section 165 of the Clean Air Act requires a BACT limit for "any pollutant subject to regulation" under the Act. 42 U.S.C. § 7475(a)(4). Accordingly, a plain-language reading of the Act compels the conclusion that, in light of *Massachusetts v. EPA*, the regulation of CO_2 under section 821 of the Act and the regulation of CO_2 under 40 C.F.R. § 60.751, Section 165 requires the establishment of BACT limits for CO_2 emissions from coal-fired power plants under the PSD program.

ii. Carbon Dioxide Is Subject To Further Regulation under the Act

Carbon dioxide is also "subject to regulation," as that term is defined, under a number of the Clean Air Act's other provisions, including sections 111 and 202.

---

[30] *See Merrill Lynch v. Dabit*, 547 U.S. 71, 86 (2006).

(1) Pollutants Subject To Future-Enacted Regulation Are "Subject To Regulation"

Emissions of a pollutant need not be currently regulated for the pollutant to be "subject to" regulation under the Clean Air Act. "Subject to regulation" means "capable of being regulated" and is not limited to pollutants that are "currently regulated." The plain meaning of section 165(a)(4) extends not only to air pollutants for which there are regulatory requirements, but also to air pollutants for which EPA and the states *possess but have not exercised authority* to impose such requirements.

EPA has recognized the general principle that "[t]echnically, a pollutant is considered regulated once it is *subject to regulation* under the Act. A pollutant *need not be specifically regulated* by a section 111 or 112 standard to be considered regulated." 66 Fed. Reg. 59161, 59163 (Nov. 27, 2001) (citing 61 Fed. Reg. 38250, 38309 (July 23, 1996)) (emphasis added).

EPA has also previously interpreted the phrase "subject to" in the context of the Resource Conservation and Recovery Act (RCRA) and Clean Water Act as meaning "should" be regulated, as opposed to currently regulated:

> RCRA section 1004(27) excludes from the definition of solid waste "solid or dissolved materials in ... industrial discharges which are point sources subject to permits under [section 402 of the Clean Water Act]." For the purposes of the RCRA program, EPA has consistently interpreted the language "point sources *subject to permits* under [section 402 of the Clean Water Act]" to mean point sources that *should have* a NPDES permit in place, whether in fact they do or not. Under EPA's interpretation of the "subject to" language, a facility that should, but does not, have the proper NPDES permit is in violation of the CWA, not RCRA.

Memo from Michael Shapiro and Lisa Friedman (OGC) to Waste Management Division Directors, Interpretation of Industrial Wastewater Discharge Exclusion from the Definition of Solid Waste at 2 (Feb. 17, 1995) (emphasis added). This interpretation of "subject to" is not limited to the context of environmental regulation. *See Kennedy v. Commonwealth Edison*, 410 F.3d 365, 371 (7th Cir. 2005) (holding that the phrase "'subject to' does not require proof that an employer has [actually] reduced an employee's wages" under Fair Labor Standards Act, 29 U.S.C. § 213); *Klein v. Rush-Presbyterian – St. Luke's Medical Center*, 990 F.2d 279, 286 (7th Cir. 1993) (holding that the phrase "'[s]ubject to reduction' does not mean that a reduction was actually made," under Fair Labor Standards Act).

(2) Sections 111 And 202 Of The Act Require EPA To Promulgate Regulations Limiting Emissions Of Pollutants From New Stationary Sources And Motor Vehicles

Section 111 of the Act requires EPA to promulgate regulations establishing standards of performance for emissions of "air pollutants" from new stationary sources. 42 U.S.C. § 7411. Section 202 requires EPA to promulgate regulations establishing standards applicable to emissions of "any air pollutant" from motor vehicles. 42 U.S.C. § 7521. Regulation under sections 111 and 202 is required where air pollution "may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7411(b)(1)(A); 42 U.S.C. § 7521(a)(1).[31] In *Massachusetts v. EPA*, the Court held that if EPA makes an endangerment finding for a pollutant, it must regulate emissions of the pollutant from new motor vehicles. 127 S. Ct. at 1462. The same analysis applies with equal force to section 111. Given this regulatory scheme and the Supreme Court's determination that EPA is authorized to regulate CO_2 as a "pollutant" under the Act, CO_2 is unquestionably a pollutant subject to regulation under the Act.

EPA is not only authorized to establish emission limitations for carbon dioxide emissions under sections 202 and 111, but is required to do so because there is no question that emissions of carbon dioxide from motor vehicles, power plants and other sources "may reasonably be anticipated to endanger the public health and welfare."[32] This standard, reflecting the precautionary nature of the Clean Air Act, does not require proof of actual harm. Congress directed that regulatory action taken pursuant to an endangerment finding would be designed to "precede, and, optimally, prevent, the perceived threat." *Ethyl Corp. v. EPA*, 541 F.2d 1, 13 (D.C. Cir. 1976). EPA is not

---

[31] The *Massachusetts v. EPA* case specifically involved a challenge to EPA's failure to prescribe regulations on carbon dioxide emissions from motor vehicles under section 202 of the Clean Air Act. The Court held that EPA has the authority to issue such regulations, and rejected the excuses advanced by EPA for failing to do so. 127 S. Ct. at 1459-63. A challenge to EPA's failure to establish emission limits for carbon dioxide emissions from power plants under section 111 of the Clean Air Act is pending before the United States Court of Appeals for the District of Columbia Circuit. *New York v. EPA*, No. 06-1322 (severed by the court from preexisting case on Sept. 13, 2006). EPA refused to establish such emission limits solely on the ground that EPA lacked the authority to regulate carbon dioxide under the Clean Air Act. Based on *Massachusetts v. EPA*, the petitioners, on May 2, 2007, asked the Court of Appeals to vacate EPA's determination that it lacks authority to regulate carbon dioxide emissions under Section 111, and to remand the matter to EPA for further proceedings consistent with the *Massachusetts v. EPA* decision.

[32] Significantly, the Supreme Court in *Massachusetts v. EPA*, also held that, having received a request to regulate CO_2 under a particular statutory provision, EPA could not invoke extra-statutory factors to decide not to regulate or to avoid addressing the applicable regulatory criteria. In short, EPA may appropriately respond to the outstanding petitions for rulemaking only by actually addressing whether or not CO_2 endangers public health or welfare. 127 S. Ct. at 1462 ("[U]se of the word 'judgment' is not a roving license to ignore the statutory text. It is but a direction to exercise discretion within defined statutory limits."). In *Green Mountain Plymouth Dodge Jeep v. Crombie*, the United States District Court for the District of Vermont, relying on *Massachusetts v. EPA*, stressed the importance of controlling emissions of greenhouse gases, even where the sources at issue make only a relatively small contribution to the very large global problems presented by global warming. Case Nos. 2:05-cv-320 and -304, slip op. at 46-47, 93-94 and 234 (Sept. 12, 2007). The court rejected an automobile industry challenge to Vermont regulations establishing greenhouse gas emission standards for automobiles.

required to document "proof of actual harm" as a prerequisite to regulation; rather, EPA is supposed to act where there is "a significant risk of harm." *Id.* at 12-13. In *Ethyl Corp.*, noting the novelty of many human alterations of the environment, the Court of Appeals for the District of Columbia Circuit found:

> Sometimes, of course, relatively certain proof of danger or harm from such modifications can be readily found. But, more commonly, 'reasonable medical concerns' and theory long precede certainty. Yet the statutes – and common sense – demand regulatory action to prevent harm, even if the regulator is less than certain that harm is otherwise inevitable.

Id. at 25.[33] The 1977 Clean Air Act Amendments confirmed and adopted the precautionary interpretation enunciated in *Ethyl Corp.*, enacting special provisions, Pub. L. No. 95-95, § 401, 91 Stat. 790-91 (Aug. 7, 1977), designed to "apply this interpretation to all other sections of the act relating to public health protection." H.R. Rep. No. 294, 95th Cong., 1st Sess. 49 (1977); *accord, id.* at 51 (amendments are designed, *inter alia*, to "emphasize the precautionary or preventive purpose of the act (and, therefore, the Administrator's duty to assess risks rather than wait for proof of actual harm)"). Congress rejected the argument that, "unless conclusive proof of actual harm can be found based on the past occurrence of adverse effects, then the standards should remain unchanged," finding that this approach "ignores the commonsense reality that 'an ounce of prevention is worth a pound of cure.'" *Id.* at 127.

The precautionary nature of the Clean Air Act creates a low threshold for findings relating to the negative consequences of air pollution. Indeed, the Supreme Court analysis in *Massachusetts v. EPA*, addressing the petitioners' standing, outlines harms caused by global warming that are more than adequate to establish endangerment under the Clean Air Act. As discussed above, other sources similarly describe adverse impacts that clearly show that the endangerment criteria of the Act have been met, and that any official finding of such is little more than a formality.

Quite simply, there is no question that greenhouse gas emissions that contribute to global warming endanger public health and welfare. As a result, not only is CO_2 currently "subject to regulation" under the Act because of existing statutory authority to regulate, but EPA and the states have a statutory *obligation* to adopt regulations that establish emission limitations for CO_2 and other GHGs pursuant to various provisions of the Act. In particular, global warming's far-reaching and grave public health and welfare impacts, which are in large part attributable to carbon dioxide emissions from power plants, automobiles and other sources, compel EPA to exercise its authority under sections 111 and 202 of the Clean Air Act to regulate carbon dioxide emissions. Thus, carbon dioxide is "subject to regulation under the Clean Air Act" both because EPA and

---

[33] *Accord, Industrial Union Dep't v. American Petroleum Institute*, 448 U.S. 607, 656 (1980) (plurality opinion) (agency need not support finding of significant risk "with anything approaching scientific certainty," but rather must have "some leeway where its findings must be made on the frontiers of scientific knowledge," and "is free to use conservative assumptions in interpreting the data," "risking error on the side of overprotection rather than underprotection").

the states currently have authority to regulate it as a pollutant under the Act and because EPA and the states have an obligation to do so under particular provisions of the Act.

iii The President's Recent Executive Order Confirms EPA's Authority To Regulate Carbon Dioxide Emissions And Directs EPA To Exercise That Authority

If there were any doubt that carbon dioxide is subject to regulation under the Clean Air Act following *Massachusetts v. EPA,* 127 S. Ct. at 1459-63, the President's May 14, 2007 Executive Order laid that to rest.[34] The Executive Order reconfirms that EPA can regulate greenhouse gases, including carbon dioxide, from motor vehicles, non-road vehicles and non-road engines under the Clean Air Act. It then directs EPA to coordinate with other federal agencies in undertaking precisely such regulatory action. The President's action indicates strongly that the Chief Executive is of the opinion that carbon dioxide is a "pollutant" and must be further regulated under the Clean Air Act. For all of the above reasons, carbon dioxide is an air pollutant subject to regulation under the Clean Air Act for which EPA must comply with BACT requirements.

(c) SDDENR Must Conduct A BACT Analysis And Set A BACT Emission Limit for CO_2

SDDENR cannot lawfully issue a permit for Big Stone II until it conducts a BACT analysis for the proposed plant's carbon dioxide emissions and, based on the BACT analysis, proposes BACT emission limitations for those carbon dioxide emissions.

Air pollutants emitted above defined "significance" levels must be regulated with a BACT emission limitation. The significance level for any pollutant that is not listed in the table at 40 C.F.R. § 52.21(b)(23)(i), is any "net emission increase." 40 C.F.R. § 52.21(b)(23)(ii) incorporated by reference into ARSD 74:36:09:02. There is no significance level for CO_2 listed in the table at 40 C.F.R. § 52.21(b)(23)(i). Thus, the obligation to adopt a BACT emission limitation for CO_2 is triggered by *any increase* in emissions of CO_2. 42 U.S.C. §§ 7475(a)(1), (4), and 7479(3); 40 C.F.R. § 52.21(j)(2); 40 C.F.R. § 52.21(b)(23)(ii), both incorporated by reference into ARSD 74:36:09:02.

There is no dispute that Big Stone II would emit significant quantities of CO_2; in fact, the facility has a potential to emit almost 5.5 million tons of CO_2 for each year of operation (totaling almost 275 million tons over its 50-year operational life).[35] Yet the draft PSD permit does not contain BACT emission limitations for carbon dioxide. Neither SDDENR or Otter Tail have conducted a BACT analysis for carbon dioxide.

---

[34] Executive Order: Cooperation Among Agencies in Protecting the Environment with Respect to Greenhouse Gas Emissions From Motor Vehicles, Nonroad Vehicles, and Nonroad Engines, May 14, 2007.

[35] Potential to emit CO_2 calculated using EPA's CO_2 emission factor of 209 lb/MMBtu for ultra supercritical boilers utilizing subbituminous coal (from EPA's July 2006 Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies, p. 3-23, and assuming maximum heat input capacity of the boilers and continual operation.

SDDENR has made no effort to identify or evaluate available "production processes or available methods, systems and techniques," for control of carbon dioxide emissions. 40 C.F.R. § 52.21(b)(12) incorporated by reference into ARSD 74:36:09:02.

SDDENR's failure to conduct a BACT analysis and establish emission limitations for carbon dioxide must be rectified before it may lawfully issue the final PSD permit for Big Stone II. If SDDENR does not categorically deny the requested permit at this time, SDDNER should request Otter Tail to provide it with all information necessary to conduct a BACT analysis, conduct the BACT analysis, and issue a revised proposed permit containing the required carbon dioxide emission limitations. Further, the public must be provided notice and an opportunity to comment and request a hearing on the revised draft PSD permit.

i. The BACT Process Is Well Suited To Address Carbon Dioxide

The Clean Air Act's BACT regime is well-suited for addressing carbon dioxide emissions from the proposed plant. Such analysis, in combination with a meaningful public participation process, provides a robust and thorough process for establishing reasonable carbon dioxide BACT emission limits for Big Stone II.

There are at least four readily-available options for limiting a facility's carbon dioxide emissions that could and should be considered in a top-down BACT analysis. These options include: 1) setting output-based standards, 2) using clean fuels, *e.g.* biomass and natural gas, 3) requiring combined heat and power, and 4) mandating carbon capture and sequestration. Each of these options has been put forward by the EPA as recognized measures to limit carbon dioxide emissions

Output-Based Standards

In the 1995 preamble to the draft New Source Performance Standards for Electric Steam Generating Units, the EPA explained that it was proposing to adopt output-based standards as a simple measure to promote efficient generation and reduce fuel use: "By relating emission limitations to the productive output of the process, output-based emission limits encourage energy efficiency because any increase in overall energy efficiency results in a lower emission rate. . . . The use of more efficient technologies reduces fossil fuel use and leads to multi-media reductions in environmental impacts both on-site and off-site." 70 Fed. Reg. 9706, 9713 (Feb. 28, 2005).

Clean Fuels

Consistent with the statutory definition of BACT and the long-standing practice of the agency, a top-down BACT determination must include consideration of "clean fuels."[36] For a power plant this may include the use of natural gas, landfill gas, biomass, fuel oil, or a combination of any of these with coal, as readily available methods to

[36] *See* 42 U.S.C. § 7479(3).

reduce carbon dioxide emissions. The Department of Energy's website notes that in 2002 there were about 9,733 megawatts of installed biomass capacity in the United States, the largest source of non-hydro renewable electricity. The sources of biomass included forest products and agricultural residues and were fired using gasification, direct firing or co-firing.[37]

Combined Heat and Power

EPA has an entire website dedicated to promoting the benefits of combined heat and power because, as EPA explains, "[combined heat and power] reduces the emission of greenhouse gases, which contribute to global climate change."[38]

Carbon Capture and Sequestration

The EPA, in comments on a draft EIS for the proposed White Pine plant, directed the federal Bureau of Land Management (BLM) to "discuss carbon capture and sequestration and other means of capturing and storing carbon dioxide as a component of the proposed alternatives."[39] The EPA's determination that it is appropriate for the BLM to consider carbon capture and sequestration and other means of carbon dioxide storage at the White Pine plant is a reasonable indication that carbon capture and sequestration (and other means of storing carbon) could be considered in the top-down BACT process for the Clean Air Act PSD permit. Further, as discussed below, Congress specifically intended the BACT analysis for power plants such as Big Stone II to consider gasification alternatives that would facilitate the capture and sequestration of carbon emissions.

In sum, there are at least four well-established methods recognized and condoned by the EPA for reducing carbon dioxide emissions from coal-fired power plants that are available and should be considered in setting a BACT emission limit for carbon dioxide.

2. The Plant's Carbon Emissions Must Be Considered In The BACT Collateral Impacts Analysis

Whether carbon dioxide is treated as a regulated pollutant or not, SDDENR must still consider carbon dioxide emissions in the collateral impacts stage of the BACT analysis. "Step 4" of the BACT analysis requires the agency to analyze the collateral economic, energy and environmental impacts of feasible pollution control technologies prior to selecting a technology-based permit limit.[40] However, in its BACT analysis for other PSD-regulated pollutants, the draft air permit failed entirely to compare the differential greenhouse gas emissions associated with available control technologies. Had SDDENR factored in the collateral greenhouse gas impacts of different control methods, it would have seen that options such as co-firing with natural gas or biomass

[37] http://www1.eere.energy.gov/biomass/electrical_power.html (last visited Oct. 8, 2007).
[38] http://www.epa.gov/chp (last visited Oct. 8, 2007).
[39] EPA Comment on the Draft EIS for the White Pine Energy Station at 14.
[40] EPA, New Source Review Manual p. B.6.

would reduce these collateral impacts and should have been elevated as preferred alternatives in the top-down BACT analysis.

Yet the draft air permit utterly failed to consider clean fuels in its BACT analysis. Available clean fuels include biomass and natural gas. Both biomass and natural gas can be co-fired with coal to substantially reduce the emissions of regulated pollutants, including carbon monoxide, as well as to reduce carbon dioxide emissions. There are numerous examples of coal plants co-firing biomass or natural gas that provide a roadmap for such consideration in the Big Stone II analysis. For example, the St. Paul, Minnesota heating plant burns approximately sixty percent biomass and forty percent coal. The biomass is primarily waste wood from tree trimmings and other industrial activities. The Xcel Bay Point power plant in Ashland, Wisconsin, also burns large amounts of wood waste, consisting primarily of saw dust.

The U.S. Department of Energy has urged federal facility managers to consider co-firing up to 20 percent biomass in existing coal-fired boilers. In the Netherlands, all four electricity-generation companies (EPON, EPZ, EZH and UNA) have developed plans to modify their conventional coal-burning plants to accommodate woody biomass as a co-fuel.

Similarly, by burning a mix of natural gas with coal, Big Stone II could lower both its pound-per-MMBtu emission rate and its hourly emission rate of CO_2. Specifically, the BACT analysis should also have considered mixing natural gas with coal in the Big Stone II boiler. Since the boiler can be designed to be able to fire natural gas, alone or in combination with coal, there is no argument that burning gas would "redefine the source." Rather, the pollution control option of co-firing gas with coal must be evaluated as part of the BACT analysis. If the cost effectiveness of combusting gas, or a combination of gas and coal, is within the range generally accepted as cost-effective for similar sources (i.e., under $10,000 per ton of pollutant removed), the SDDENR must consider basing the BACT limit on the lower emissions created by combusting natural gas.

In short, SDDENR should require Otter Tail to consider (as part of its BACT analysis) the co-firing of biomass or natural gas as a means to mitigate CO_2 emissions. The possible types of biomass include wood wastes, agricultural waste, switchgrass and prairie grasses.

3. SDDENR Should Conduct An Alternatives Analysis That Considers Global Warming Impacts

Regardless of whether CO_2 is currently a pollutant subject to regulation under the Act, SDDENR, as the permitting authority for Big Stone II, has the authority to require evaluation of CO_2 emissions and establish appropriate permit conditions or otherwise address these emissions. EPA's Office of Air and Radiation, Office of General Counsel, and the Environmental Appeals Board have expressed the opinion that permitting authorities have broad discretion to consider alternatives, conduct or require analyses,

and impose permit conditions to address issues under CAA section 165(a)(2) beyond the required BACT analysis. *See In re Prairie State*, PSD Appeal 05-05, 12 E.A.D. __ (Aug. 24, 2006); *In re Knauf Fiber Glass*, 8 E.A.D. 1212, (EAB 1999); *In re Hillman Power*, 10 E.A.D. 673, 692 (EAB 2002).[41] The EAB has consistently held that states have broad discretion to consider various options, including, among other things, broad discretion to independently evaluate options and alternatives, and to adopt conditions or requirements that they deem appropriate. For example, the Board has held that a permitting authority may require "redefinition of the source," including requiring or restricting certain fuels. *Hillman Power*, 10 E.A.D. at 692.

EPA has recognized that "a PSD permitting authority still has an obligation under section 165(a)(2) to consider and respond to relevant public comments on alternatives to the source," and that a "PSD permitting authority *has discretion under the Clean Air Act to modify the PSD permit based on comments raising alternatives* or other appropriate considerations." BRIEF OF THE EPA OFFICE OF AIR AND RADIATION AND REGION V, *In re Prairie State*, PSD Appeal 05-05, 12 E.A.D. __ (EAB, Aug. 24, 2006). Moreover, the EAB has made clear that a permitting authority has discretion to modify a permit based on consideration of "alternatives" whether or not the issues are raised by commenters:

> Indeed, the permit issuer is not required to wait until an "alternative" is suggested in the public comments before the permit issuer may exercise the discretion to consider the alternative. Instead, the permit issuer *may identify an alternative on its own*. This interpretation of the authority conferred by CAA section 165(a)(2)'s reference to "alternatives" is consistent with the Agency's longstanding policy that, . . . "this is an aspect of the PSD permitting process in which *states have the discretion to engage in a broader analysis if they so desire*."

See In re Prairie State, PSD Appeal 05-05 (Aug. 24, 2006) (quoting the NSR Workshop Manual at B.13).

In fact, under this authority, a permitting authority can engage in a wide-ranging exploration of options, including fuel switching, and other generation and non-generation alternatives.[42] Under this authority SDDENR clearly has the discretion to require specific evaluation and control of CO_2 emissions, and/or to require other action to mitigate potential global warming impacts. Failure to do so in this case is a material breach of the agency's obligations to the people of South Dakota and the United States.

---

[41] This discretion even extends to requiring specific additional BACT analysis. In *Knauf*, the Board explained that although "[s]ubstitution of a gas-fired power plant for a planned coal-fired plant would amount to redefining the source . . . redefinition of the source is not always prohibited. This is a matter for the *permitting authority's discretion. The permitting authority may require consideration of alternative production processes in the BACT analysis when appropriate. See* NSR Manual at B.13-B.14; Old Dominion, 3 E.A.D. at 793 (permit issuer has discretion "to consider clean fuels other than those proposed by the permit applicant.")." *Knauf*, 8 E.A.D. at 136 (emphasis added).

[42] For a thorough analysis of the factors, including CO_2 emission reductions options, to be considered in the alternatives analysis for new power plants, see the article by EPA Office of General Counsel attorney Gregory Foote entitled, "Considering Alternatives: The Case for Limiting CO_2 Emissions From New Power Plants Through New Source Review." 34 Envt'l L. Rev. 10642 (2004).

To date, there has been no specific assessment of available measures or options to reduce the expected greenhouse gas emissions from the proposed Big Stone II, or even alternatives to the proposed plant itself. SDDENR could require any number of possible actions to address the CO_2 footprint of the proposed plant. Options include requiring specific energy efficiency, conservation or demand-side-management activities to reduce energy consumption, requiring a change to a less CO_2-intensive fuel (like natural gas or biomass co-firing), requiring a construction of a smaller source, imposing limits on hours of operation, requiring the capture and sequestration of CO_2, requiring construction of a more efficient facility, requiring the purchase of CO_2 offsets, or some combination of these approaches or others. As other energy utilities have demonstrated, it is even possible to build new coal plants and *reduce* overall carbon emissions, through a combination of closing older, inefficient boilers and investing in wind power and energy efficiency. Some of the commenters participated in just such a settlement in Springfield, Illinois.[43]

Among the alternatives SDDENR should consider under § 165(a)(2) of the Act is the "no-build" option, under which SDDENR would deny the PSD permit based on policy considerations related to CO_2.[44] The state of South Dakota has alternative sources of energy which, if developed, would provide an alternative to building Big Stone II. The consideration of such options should be subject to a process of public discussion.

E. There Are A Number Of Alternatives To Big Stone II That Would Reduce Total Carbon Emissions

1. Renewables And Energy Efficiency

A growing number of states – including Florida, Idaho, and Kansas – have recognized that the cheapest source of new energy is efficiency (i.e., energy not needed), and that the most effective solution to coal-burning plants' contribution to global warming is not to build the plants in the first place. SDDENR has ample legal authority to deny an individual plant's construction permit on these and other grounds, under the PSD regulations.[45] SDDENR has not, however, asked whether it should do so – despite increasing evidence that demand reductions and renewable, carbon-free energy sources are currently available and cost-effective.

---

[43] *See A Question of Balance*, St. Louis Post- Dispatch, September 5, 2006.

[44] The Board has said:

> We are unable to reconcile the view that consideration of need for a facility is outside the scope of section 165(a)(2) of the Clean Air Act with the text of the statute and prior decisions. The statutory text's plain meaning does not lend itself to excluding public comments that request consideration of the "no build" alternative to address air quality concerns. Moreover, the Board's and Administrator's prior decisions would appear to recognize that consideration of "need" is an appropriate topic under section 165(a)(2). *See In re EcoEléctrica*, LP, 7 E.A.D. 56, 74 (EAB 1997) *In re Prairie State*, PSD Appeal 05-05, 12 E.A.D. __ (EAB Aug. 24 2005).

[45] See Foote, G., *Considering Alternatives: The Case for Limiting CO_2 Emissions From New Power Plants Through New Source Review*" 34 Envt'l L. Rev. 10642 (2004).

South Dakota is of course rich in renewable energy sources, such as solar, geothermal, and wind, as detailed in the subsections (a), (b), and (c) below. Utility-scale renewables, coupled with efficiency, would allow South Dakota to generate and/or save the power expected from the proposed plant, without any carbon dioxide pollution. Renewables and efficiency are both cost-effective and available today.

SDDENR should evaluate these resources as alternatives that, alone or in combination, could postpone or avoid the need to build new fossil fuel generating capacity, making unnecessary Big Stone II or allow Otter Tail to build a smaller plant. By investing in modern renewables, the state would both protect South Dakotans' health and environment, and position South Dakota's economy at the forefront of the expanding clean-energy industry. Construction of the proposed plant would, instead, commit South Dakota to ongoing reliance on the outdated, polluting technologies of the past - stifling growth of renewables, and forfeiting the long-term, high quality jobs and wealth that will attend leadership in the emerging energy economy.

2. A Reduction In The Size Of The Plant

While commenters believe that Big Stone II should not be built, SDDENR is required to consider permitting a smaller unit than the 600-MW unit planned by Otter Tail. Doing so would allow Otter Tail to explore meeting its power generation through cleaner, renewable forms of energy.

3. Greenhouse Gas Offsets

Another way in which Otter Tail could counteract the enormous carbon dioxide emissions from Big Stone II is to consider greenhouse gas offsets. Offsets can be an essential component of reducing CO_2 emissions because they can be implemented quickly for a relatively low cost. There are a number of ways in which Otter Tail could create offsets, including programs to increase the energy efficiency in buildings, factories, or transportation, generating electricity from renewable energy sources like wind or solar, modifying other power plants to use fuels that produce less CO_2 and other greenhouse gases, and capturing carbon dioxide in forests and agricultural soils. Another advantage of offsets is that they often result in other environmental, social, and economic co-benefits such as reductions in other dangerous pollutants, restoration of degraded lands, improvement in watersheds and water quality, creation of jobs and lower prices for electricity and gasoline.

4. A Permit Limit On the Proposed Plant's Net Thermal Efficiency

As part of the new NSPS standards, EPA adopted output-based standards as a step towards minimizing inefficient and unnecessarily polluting boilers. In the analysis for the new NSPS standards, EPA identified that boiler efficiency can vary enormously. EPA further explained that the highest efficiency subbituminous, bituminous, and lignite

facilities are 43, 38, and 37 percent respectively. A paper presented by three EPA combustion experts at the 2005 Pittsburgh Coal Conference detailed the enormous difference in the efficiency (i.e., the CO_2 emissions per ton of coal burned) between different types of coal plants. See Sikander Khan *et al., Environmental Impact Comparisons IGCC vs. PC Plants* (Sept. 2005).

Thus, to minimize the emissions of carbon dioxide, SDDENR should include a permit provision requiring the project proponent to maintain a net thermal efficiency at or above at least 37 percent. Such a requirement correlates with the efficiencies of the supercritical boiler that SDDENR is proposing to permit at Big Stone II.[46] Such a term would minimize both the emissions of regulated pollutants and the collateral emissions of carbon dioxide.

5. Carbon Capture and Sequestration

The capture and sequestration of carbon emissions is an important means of reducing carbon emitted to atmosphere that should be included in the alternatives analysis for this permit.

F. Delay Makes No Sense

As a policy matter, it makes no sense to delay consideration of CO_2 emissions in the context of PSD permitting. Even if it were permissible to read the Clean Air Act as allowing EPA and the states to avoid setting a BACT emission limit for CO_2 as this stage, it is undeniable that such limitations will become mandatory as soon as EPA promulgates regulations establishing emission limitations or other specific controls on CO_2 emissions (and other greenhouse gases) under any provision of the Act. EPA has already announced its intention to promulgate emission limitations for greenhouse gases, thus, the need to establish a BACT emission limit for CO_2 is only a matter of time. We already have the necessary information to establish a BACT limit for CO_2. We know that CO_2 contributes to global warming; we know that global warming presents a host of significant adverse health, environmental, social and economic impacts; and we know what strategies are currently available to mitigate CO_2 emissions at major sources. The only purpose of delaying regulatory consideration of CO_2 is delay itself. Such a head-in-the-sand approach will result in new significant sources of greenhouse gases approved without the benefit of any meaningful assessment of opportunities to reduce CO_2, contributing to the ongoing harms of global warming, and making it more difficult and more expensive to address the problem in the future. The only responsible course of action is for SDDENR to conduct a thorough evaluation of opportunities to limit CO_2 emissions now, and to include specific CO_2 limits in the permit for Big Stone II. SDDENR owes no less responsibility to the people of South Dakota and the United States.

[46] See EPA's July 2006 Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies at ES-7.

XI. SDDENR FAILED TO EVALUATE IGCC IN THE BACT ANALYSIS

The comments regarding SDDENR's failure to evaluation integrated gasification combined cycle (IGCC) in the BACT analysis for Big Stone II from my June 23, 2006 comment letter on the SDDENR's initial 2006 draft PSD permit are incorporated into this comment letter. In addition to those comments, below I have provided a table with more recent IGCC permit limits for comparison to the proposed Big Stone II BACT limits.

Comparison of Emission Rates from the proposed Big Stone II with proposed IGCC plants.

Facility	*Technology*	*NO_x* (lb/MMBtu)	*SO_2* (lb/MMBtu)	*PM* (lb/MMBtu)	*H_2SO_4* (lb/MMBtu)	*CO* (lb/MMBtu)	*VOC* (lb/MMBtu)
Big Stone II	**Supercritical PC**	---	---	**0.012 (filterable) (avg of 3 test runs)**	**0.005 (avg of 3 test runs)**	**0.15 (30-day rolling)**	**0.0036 (avg of 3 test runs)**
Taylorville Energy Center	IGCC	0.0246 (24-hr avg)	0.0117 (3-hr avg)	0.0063 (filterable) (3-hr avg)	0.0026 (3-hr avg)	0.036 (24-hr avg)	0.006 (24-hr avg)
Erora Cash Creek	IGCC	0.0246 (24-hr avg)	0.0117 (3-hr avg)	0.0063 (filterable) (3-hr avg)	0.0026 (3-hr avg)	0.036 (24-hr avg)	0.006 (24-hr avg)
Mesaba I & II	IGCC	0.057	0.025	0.009	--	0.0345	0.0032

XII. THE PROPOSED PM_{10} BACT EMISSION LIMITS FAIL TO REFLECT THE MAXIMUM LEVEL OF CONTROL THAT CAN BE ACHIEVED

The comments regarding the PM_{10} BACT emission limits from my June 23, 2006 comment letter on the SDDENR's initial 2006 draft PSD permit are incorporated into this comment letter. In addition to the facilities mentioned in my June 23, 2006 comment letter, there have been additional proposed and final permits since SDDENR initially proposed the Big Stone II PSD permit in 2006 with more restrictive PM_{10} BACT limits than that proposed for Big Stone II.

XIII. THE H_2SO_4 EMISSION LIMIT DOES NOT REFLECT BACT

The comments regarding the H_2SO_4 BACT emission limits from my June 23, 2006 comment letter on the SDDENR's initial 2006 draft PSD permit are incorporated into this comment letter. In addition to the facilities mentioned in my June 23, 2006 comment letter, there have been additional proposed and final permits since SDDENR initially proposed the Big Stone II PSD permit in 2006 with more restrictive H_2SO_4 BACT limits than that proposed for Big Stone II.

XIV. THE BACT LIMITS MUST MEET ENFORCEABILITY CRITERIA

The comments regarding enforceability of BACT limits from my June 23, 2006 comment letter on the SDDENR's initial 2006 draft PSD permit are incorporated into this comment letter.

The following comment is in addition to the comments previously made on enforceability of BACT limits: SDDENR must also ensure that the limitations on fugitive dust emissions are clearly and practically enforceable. That means the provisions need to be sufficiently detailed so that Otter Tail understands what needs to be done to comply with the fugitive dust control requirements and so that SDDENR can readily determine compliance. The fugitive dust control measures in Section 7.0 of the 2008 draft PSD permit are not sufficiently clear in this respect. Further, SDDENR needs to show that the fugitive dust control measures accurately correspond to Otter Tail's assumptions for the PM_{10} emissions from these sources assumed for the PM_{10} modeling. This is especially important given that Otter Tail has projected to consume 99.7% of the Class II 24-hour average PM_{10} increment just from the emissions units covered by the draft PSD permit. The permit must also include adequate recordkeeping and reporting requirements so that SDDENR can ensure that Otter Tail complied with the necessary fugitive dust control measures.

XV. SDDENR CANNOT EXEMPT EMISSIONS DUE TO STARTUP OR SHUTDOWN FROM BACT OR MODELING EMISSION LIMITS

Section 4.8 of the 2008 draft PSD permit for Big Stone II provides the following requirement as BACT during periods of startup, shutdown, and malfunction:

> . . .the owner or operator shall utilize good work and maintenance practices and manufacturers' recommendations to minimize emissions during, and the frequency and duration of, startup, shutdown, and malfunction events for Unit #13, #14, #15, #25 and #33. The owner or operator shall develop and implement a startup, shutdown, and malfunction plan for Unit #13, #14, #15, #25 and #33. The startup, shutdown, and malfunction plan shall describe, in detail, procedures for operating and maintaining Unit #13, #14, #15, #25 and #33 during periods of startup, shutdown, and malfunction; a program of corrective action for malfunctions; and record keeping requirements identifying that the procedures and corrective actions were completed. The startup, shutdown, and malfunction plan shall be submitted to and approved by the Secretary at least 90 days prior to the initial startup of Unit #13.

Section 4.8 of draft PSD permit.

This provision is inconsistent with the Clean Air Act and must be deleted. Startup and shutdown are part of the normal operation of a source such as Big Stone II. Emission limits defined as BACT under the PSD program are established under the state implementation plan and are intended to protect ambient air standards. The ambient air

quality standards are to be met on a continuous basis. Thus compliance with the BACT limits must also be on a continuous basis. For the same reasons, compliance with any of the emission limits used in the ambient air modeling analyses must also include emissions during startup, shutdown and malfunction. If it were legitimate for SDDENR to include such a provision in Big Stone II's permit, it would only be acceptable if there was a demonstration that Big Stone II's allowable emissions during startup or shutdown would not cause or contribute to a violation of any NAAQS or increment. Since Section 4.8 of the draft PSD permit does not specify any alternative emission limits that must be met by Big Stone II during startup or shutdown, the Big Stone II emission units would have to be modeled at uncontrolled potential emission rates. Neither Otter Tail nor SDDENR have provided such a demonstration to verify that Condition 4.8 of the draft PSD permit would not allow Big Stone II to cause or contribute to a violation of any NAAQS or PSD increment.

Section 302(k) of the Clean Air Act expressly defines the term "emission limitation" as a limitation on emissions of air pollutants "on a continuous basis." Section 169(3) of the Clean Air Act, in turn, defines BACT as an "emission limitation." Accordingly, the Clean Air Act mandates that BACT continuously limit emissions of air pollutants. EPA's January 28, 1993 guidance memo entitled "Automatic or Blanket Exemptions for Excess Emissions During Startup, and Shutdowns Under PSD" specifically disallows automatic exemptions from BACT emission limits. Thus, the permit for Big Stone II must ensure that BACT emission limits and modeling emission limits are met at all times, and thus the provision in Section 4.8 of the 2008 draft PSD permit cited above must be deleted.

XVI. THE HURON AIRPORT METEOROLOGICAL DATA ARE UNACCEPTABLE FOR AIR DISPERSION MODELING

The comments regarding the Huron Airport meteorological data from my June 23, 2006 comment letter on the SDDENR's initial 2006 draft PSD permit are incorporated into this comment letter.

XVII. PRECONSTRUCTION MONITORING SHOULD HAVE BEEN REQUIRED

The comments regarding the need for Otter Tail to conduct on-site preconstruction monitoring of meteorology from my June 23, 2006 comment letter on the SDDENR's initial 2006 draft PSD permit are incorporated into this comment letter.

XVIII. SDDENR'S SO_2 MODELING ANALYSES ARE FLAWED

In its 2006 Statement of Basis for the draft Big Stone II PSD permit, SDDENR indicated that it had conducted modeling of the impacts on the CO, SO_2 and NO_2 NAAQS by Big Stone I and Big Stone II. See 2006 SDDENR Statement of Basis for Big Stone II PSD Permit at 33 and in Table 10-21. Neither Otter Tail nor SDDENR have provided any revised CO, SO_2 or NO_2 NAAQS modeling since that time. In addition to

the issues with using meteorological data from the Huron Airport described above, SDDENR's 2006 modeling analyses for the 3-hour average and 24-hour average SO_2 concentrations are flawed because there are no emission limitations consistent with the modeling that are required to be met at Big Stone I or Big Stone II on a 3-hour or 24-hour basis. In fact, each unit's short term average allowable SO_2 emission rates are much higher than what was modeled. Big Stone I has no limits on SO_2 emissions whatsoever. Thus, any modeling analysis of its emissions must be based on the worst case uncontrolled emission rate over a 3-hour and a 24-hour period from the unit. For Unit 2, no short term average enforceable limits have been proposed. Thus, its uncontrolled potential emission rate must be modeled, based on the maximum capacity of the unit to emit SO_2 over a 3-hour and a 24-hour period.[47] It is difficult to calculate the potential short term SO_2 emission rates from Big Stone II because Otter Tail failed to provide any data on the characteristics of the coal to be burned at Big Stone II. The 30-day average NSPS emission limit for SO_2 does not limit 3-hour and 24-hour average emission rates, and thus can't be considered as limiting short term SO_2 emissions from Big Stone II. Consequently, the short term potential emission rates of SO_2 at Big Stone II must be based on worst case uncontrolled SO_2 emission rates from subbituminous coal, and on the maximum potential heat input to the boiler. Alternatively, SDDENR can impose 3-hour average and 24-hour average SO_2 emission limits on the Big Stone sources and model those allowable emission rates in an assessment of compliance with the SO_2 NAAQS.

Otter Tail or SDDENR must conduct revised modeling with more representative meteorological data of Big Stone's impacts on the SO_2 NAAQS using emission rates that are reflective of what the facility is or will be allowed to emit over the averaging time of the standard in question. Regardless of whether the Big Stone II facility legitimately avoids PSD review for SO_2, SDDENR cannot issue the permit without an adequate demonstration that the allowable emissions increases from Big Stone II will not cause or contribute to a violation of any national ambient air quality standard. See 40 C.F.R. §52.21(k)(1) incorporated by reference into ARSD 74:36:09:02. While the plantwide cap (if it was truly enforceable as a practical matter and if it was legitimate to exempt Big Stone II from PSD review for SO_2) may not allow annual emission increases of SO_2, the 12-month rolling average plantwide cap provides absolutely no assurances that 3-hour or 24-hour average increases in SO_2 emissions from the Big Stone plant won't occur. The 2008 draft PSD permit also does not limit 3-hour or 24-hour average SO_2 emissions whatsoever from the Big Stone II facility. Further, even if annual SO_2 emissions from the facility would not increase, the locations and stack parameters of the annual emissions will change with the operation of Big Stone II. Therefore, SDDENR cannot lawfully issue a permit authorizing construction of Big Stone II without a demonstration that the facility will not cause or contribute to a violation of the SO_2 NAAQS. Not only must this issue be addressed for the PSD permit, but it must also be addressed before SDDENR can issue the Big Stone Title V permit. ARSD 74:36:05:06.

---

[47] The heat input capacity of Big Stone II of 6,000 MMBtu/hr was listed as the nominal heat input capacity by Otter Tail. The maximum heat input capacity must be used in determining allowable short term average emission rates, absent a limitation in the permit on maximum heat input capacity of the Big Stone II unit.

XIX. THE PM_{10} NAAQS AND INCREMENT MODELING ANALYSES ARE FLAWED

The comments regarding the flawed PM_{10} NAAQS and increment modeling analyses from my June 23, 2006 comment letter on the SDDENR's initial 2006 draft PSD permit are incorporated into this comment letter. In addition, it is not clear that the receptor grid used in Otter Tail's revised PM_{10} analysis was adequate to ensure that the maximum PM_{10} concentrations were reflected in the modeling.

XX. BIG STONE I MUST ALSO BE MODELED AS AN INCREMENT-CONSUMING SOURCE

The comments regarding the flawed PM_{10} increment modeling because Big Stone I was not included as a PM_{10} increment consuming source from my June 23, 2006 comment letter on the SDDENR's initial 2006 draft PSD permit are incorporated into this comment letter.

In addition to those comments, it must be noted that EPA has questioned whether Big Stone I is increment consuming based on the date that construction commenced on the source. If construction commenced on the Big Stone I boiler after January 6, 1975 (i.e., the major source baseline date for PM_{10}), then the Big Stone I PM_{10} emissions consume the available increment. See definition of "baseline concentration" and definition of "major source baseline date" at 40 C.F.R. §52.21(b)(13)(ii)(a) and (b)(14)(i), incorporated by reference into ARSD 74:36:09:02. Section 1.1 of the draft Title V permit shows the construction date of the Big Stone I boiler as 1975. Thus, as recommended by EPA, SDDENR must verify the date that construction commenced on Big Stone I to determine whether construction commenced after the major source baseline date. See discussion on pages 4-5 of the Enclosure to EPA's June 26, 2006 comment letter to SDDENR on the draft Big Stone II PSD Permit. (Attached).

XXI. THE CO LIMIT DOES NOT REFLECT BACT

SDDENR has proposed a CO BACT limit of 0.15 lb/MMBtu, 30 day rolling average. Section 4.2 of 2008 Draft PSD Permit for Big Stone II. A review of the information submitted to EPA's RACT/BACT/LAER Clearinghouse as well as of recently proposed and final BACT limits for coal-fire power plants shows that lower CO limits and/or with more restrictive averaging times have been proposed or required as BACT. SDDENR must consider these lower limits that have been required for coal-fired power plants in its BACT analysis for Big Stone II.

XXII. THE FLUORIDE LIMIT DOES NOT REFLECT BACT

SDDENR has proposed a fluoride BACT limit of 0.0006 lb/MMBtu, 3 test run average. Section 4.5 of 2008 Draft PSD Permit for Big Stone II. A review of the information submitted to EPA's RACT/BACT/LAER Clearinghouse as well as of

recently proposed and final BACT limits for coal-fire power plants shows that lower fluoride limits and/or with more restrictive averaging times have been proposed or required as BACT. SDDENR must consider these lower limits that have been required for coal-fired power plants in its BACT analysis for Big Stone II.

XXIII. THE VOLATILE ORGANIC COMPOUND LIMIT FAILS TO REFLECT BACT

SDDENR has proposed a volatile organic compound (VOC) BACT limit of 0.0036 lb/MMBtu, 3 test run average. Section 4.3 of 2008 Draft PSD Permit for Big Stone II. A review of the information submitted to EPA's RACT/BACT/LAER Clearinghouse as well as of recently proposed and final BACT limits for coal-fire power plants shows that lower VOC limits and/or with more restrictive averaging times have been proposed or required as BACT. SDDENR must consider these lower limits that have been required for coal-fired power plants in its BACT analysis for Big Stone II.

XXIV. SDDENR CANNOT AUTHORIZE OPERATIONAL CHANGES AT BIG STONE I WITHOUT A REVIEW OF WHETHER THOSE OPERATIONAL CHANGES SHOULD BE SUBJECT TO PSD PERMITTING AS A MAJOR MODIFICATION.

SDDENR has proposed to include a plantwide cap on NO_x as well as SO_2 in the draft Title V permit for Big Stone to allow the Big Stone II units to avoid PSD review for those pollutants. See draft Title V permit, Conditions 9.2 and 9.4. With respect to the plantwide cap on NO_x emissions, the Statement of Basis for the draft Title V permit indicates that compliance with be achieved via operational changes at Big Stone I to reduce NO_x emissions. Statement of Basis for Title V permit at 14. Presumably, Otter Tail will use overfire air "more aggressively" as indicated in its PSD permit application for Big Stone II. See June 2006 Big Stone II permit application at 3-2. Increased use of overfire air or other combustion controls that could be used to reduce NO_x emissions at Big Stone I could increase carbon monoxide (CO) and volatile organic compound (VOC) emissions, as the combustion conditions that favor decreased NO_x emissions tend to increase emissions of these pollutants. Consequently, it is improper for SDDENR to allow changes to the method of operation at the Big Stone I boiler without requiring a permit application from Otter Tail detailing the changes in emissions and without conducting a review of those changes in emissions to determine whether PSD permitting must apply to the potential increases in CO and/or VOC emissions.

XXV. THE DRAFT TITLE V PERMIT FOR BIG STONE FAILS TO INCLUDE ALL OF THE PROVISIONS OF THE DRAFT PSD PERMIT FOR BIG STONE II.

A Title V permit is required to include all requirements applicable to a source. ARSD 74:36:05:16.01(8) and (19). SDDENR is proposing to incorporate plantwide emission caps on SO_2 and NO_x emissions at Big Stone in an attempt to allow the new Big Stone II to avoid PSD review, but SDDENR has not incorporated any of the other requirements from the draft PSD permit into the Title V permit. Thus, the Title V permit

is illegal because it authorizes operation of the Big Stone II unit and associated emission units without including all other applicable requirements of the draft PSD permit for Big Stone II.

XXVI. SDDENR MUST ISSUE A NOTICE OF MACT APPROVAL FOR BIG STONE II BEFORE IT CAN AUTHORIZE CONSTRUCTION OR OPERATION OF THE BIG STONE II EMISSION UNITS.

Section 112 of the Clean Air Act requires that SDDENR establish a "Maximum Achievable Control Technology" ("MACT") limit for all hazardous air pollutants emitted by Big Stone II, before authorizing construction or operation of Big Stone II. 42 U.S.C. § 7412(g)(2)(B) ("[N]o person may construct or reconstruct any major source of hazardous air pollutants, unless the Administrator) or the State determines that the maximum achievable control technology emission limitation . . . will be met"). See also 40 C.F.R. Part 63, Subpart B, incorporate by reference into ARSD 74:36:08:03.01. Although the U.S. Environmental Protection Agency had purported to remove coal-fired power plants from the list of sources subject to Section 112's requirements, the Court of Appeals for the D.C. Circuit has confirmed that EPA's "de-listing" of coal-fired plants was unlawful. *New Jersey v. Environmental Protection Agency,* No. 05-1097, slip op. (D.C. Cir. Feb. 8, 2008) (vacating rule) **(attached).** *See also Environmental Defense v. E.P.A.,* 489 F.3d 1320, 1325 (D.C. Cir. 20707) (vacated rule lacks legal effect). Coal-fired plants are, accordingly, subject to Section 112.

A MACT limit is therefore required for all the plant's hazardous air pollutants, and SDDENR should withdraw the draft PSD and Title V permits, undertake a case-by-case MACT analysis for those pollutants, and re-submit the permit for public comment, as required by Section 112. SDDENR's failure to impose a MACT limit for mercury and the other hazardous air pollutants to be emitted by the Big Stone II facility both violates the law, and endangers public health and well-being.

Thank you for consideration of these comments.

Yours Sincerely,
/s/
George E. Hays

List of Attachments

38. Printout of SDDENR Public Notice Website (as of March 13, 2007)

39. EPA's June 26, 2006 comment letter to SDDENR on the draft Big Stone II PSD Permit

40. EPA's February 29, 2008 comment letter to SDDENR on the draft Big Stone II PSD Permit and draft Title V Permit for Big Stone I

41. *New Jersey v. Environmental Protection Agency,* No. 05-1097, slip op. (D.C. Cir. Feb. 8, 2008)